

SEQUENCE LISTING

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<120> Optimized Multi-epitope Constructs and Uses Thereof

<130> 2060.0200003

<150> US 60/415,463  
<151> 2002-10-03

<150> US 60/419,973  
<151> 2002-10-22

<160> 479

<170> PatentIn version 3.2

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<211> 13  
<212> PRT  
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<220>  
<223> PADRE peptide, HLA Class II supermotif example

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<222> (1)..(1)  
<223> May be D- or L-Alanine

<220>  
<221> MISC\_FEATURE  
<222> (3)..(3)  
<223> Xaa may be cyclohexylalanine, Phenylalanine or Tyrosine

<220>  
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<222> (13)..(13)  
<223> May be D- or L-Alanine

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Ala Lys Xaa Val Ala Ala Trp Thr Leu Lys Ala Ala Ala  
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<213> Unknown

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<223> Spacer peptide

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Gly Pro Gly Pro Gly  
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<212> PRT  
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<223> CTL multi-epitope construct

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Thr Leu Lys Ala Ala Ala Phe Leu Pro Ser Asp Phe Phe Pro Ser Val  
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Phe Leu Leu Ser Leu Gly  
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<213> Unknown

<220>  
<223> CTL multi-epitope construct

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Lys Leu Thr Pro Leu Cys  
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<220>  
<223> CTL multi-epitope construct

<400> 5

Ile Leu Gly Gly Trp Val Asp Leu Met Gly Tyr Ile Pro Leu Val  
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<212> PRT  
<213> Unknown

<220>

<223> CTL multi-epitope construct

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Val Pro Gly Ser Arg Gly Asp Leu Met Gly Tyr Ile Pro Leu Val Ala  
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Lys Phe Val Ala  
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<211> 9

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<213> Unknown

<220>

<223> Artificial Peptide

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Val Leu Ala Glu Ala Met Ser Gln Val  
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<220>

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Ile Leu Lys Glu Pro Val His Gly Val  
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<213> Hepatitis B Virus

<400> 9

Phe Leu Pro Ser Asp Phe Phe Pro Ser Val  
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<213> Hepatitis B Virus

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Phe Leu Leu Thr Arg Ile Leu Thr Ile  
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Leu Leu Val Pro Phe Val Gln Trp Phe Val  
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Gly Leu Ser Arg Tyr Val Ala Arg Leu  
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Tyr Met Asp Asp Val Val Leu Gly Val  
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<400> 16

Ile Leu Arg Gly Thr Ser Phe Val Tyr Val  
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<400> 17

Phe Leu Leu Ser Leu Gly Ile His Leu  
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<210> 18  
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<212> PRT  
<213> Hepatitis B Virus

<400> 18

Ala Leu Met Pro Leu Tyr Ala Cys Ile  
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<210> 19  
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<212> PRT  
<213> Hepatitis B Virus

<400> 19

Gly Leu Ser Pro Thr Val Trp Leu Ser Val  
1 5 10

<210> 20  
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<212> PRT  
<213> Hepatitis B Virus

<400> 20

Ser Thr Leu Pro Glu Thr Thr Val Val Arg Arg  
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<210> 21  
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<213> Hepatitis B Virus

<400> 21

His Thr Leu Trp Lys Ala Gly Ile Leu Tyr Lys  
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<210> 22  
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<213> Hepatitis B Virus

<400> 22

Thr Leu Trp Lys Ala Gly Ile Leu Tyr Lys  
1 5 10

<210> 23

<211> 10

<212> PRT

<213> Hepatitis B Virus

<400> 23

Leu Val Val Asp Phe Ser Gln Phe Ser Arg  
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<210> 24

<211> 9

<212> PRT

<213> Hepatitis B Virus

<400> 24

Asn Val Ser Ile Pro Trp Thr His Lys  
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<210> 25

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<213> Hepatitis B Virus

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Ser Ala Ile Cys Ser Val Val Arg Arg  
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<210> 26

<211> 9

<212> PRT

<213> Hepatitis B Virus

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Lys Val Gly Asn Phe Thr Gly Leu Tyr  
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<210> 27

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<213> Hepatitis B Virus

<400> 27

Gln Ala Phe Thr Phe Ser Pro Thr Tyr Lys  
1 5 10

<210> 28  
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<400> 28

Leu Pro Ser Asp Phe Phe Pro Ser Val  
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<210> 29  
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<400> 29

Ile Pro Ile Pro Ser Ser Trp Ala Phe  
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<400> 30

Thr Pro Ala Arg Val Thr Gly Gly Val Phe  
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<210> 31  
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<400> 31

His Pro Ala Ala Met Pro His Leu Leu  
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<210> 32  
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<400> 32

Tyr Pro Ala Leu Met Pro Leu Tyr Ala  
1 5

<210> 33  
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<213> Hepatitis B Virus

<400> 33

Phe Pro His Cys Leu Ala Phe Ser Tyr  
1 5

<210> 34  
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<400> 34

Phe Pro His Cys Leu Ala Phe Ser Tyr Met  
1 5 10

<210> 35  
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<400> 35

Tyr Pro Ala Leu Met Leu Tyr  
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<210> 36  
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<400> 36

Tyr Pro Ala Leu Met Pro Leu Tyr Ala Cys Ile  
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<210> 37  
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Trp Met Met Trp Tyr Trp Gly Pro Ser Leu Tyr  
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<400> 38

Asp Leu Leu Asp Thr Ala Ser Ala Leu Tyr  
1 5 10

<210> 39  
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<400> 39

Leu Thr Phe Gly Arg Glu Thr Val Leu Glu Tyr  
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<212> PRT

<213> Hepatitis B Virus

<400> 40

His Thr Leu Trp Lys Ala Gly Ile Leu Tyr  
1 5 10

<210> 41

<211> 8

<212> PRT

<213> Hepatitis B Virus

<400> 41

Ala Ser Phe Cys Gly Ser Pro Tyr  
1 5

<210> 42

<211> 10

<212> PRT

<213> Hepatitis B Virus

<400> 42

Leu Ser Leu Asp Val Ser Ala Ala Phe Tyr  
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<210> 43

<211> 8

<212> PRT

<213> Hepatitis B Virus

<400> 43

Tyr Ser Leu Asn Phe Met Gly Tyr  
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<210> 44

<211> 10

<212> PRT

<213> Hepatitis B Virus

<400> 44

Ile Leu Leu Leu Cys Leu Ile Phe Leu Leu  
1 5 10

<210> 45  
<211> 10  
<212> PRT  
<213> Hepatitis B Virus

<400> 45

Arg Trp Met Cys Leu Arg Arg Phe Ile Ile  
1 5 10

<210> 46  
<211> 10  
<212> PRT  
<213> Hepatitis B Virus

<400> 46

Ser Trp Pro Lys Phe Ala Val Pro Asn Leu  
1 5 10

<210> 47  
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<400> 47

Arg Phe Ser Trp Leu Ser Leu Leu Val Pro Phe  
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<210> 48  
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<400> 48

Leu Trp Phe His Ile Ser Cys Leu Thr Phe  
1 5 10

<210> 49  
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<400> 49

Glu Tyr Leu Val Ser Phe Gly Val Trp  
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<210> 50  
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<400> 50

Ser Phe Cys Gly Ser Pro Tyr Ser Trp  
1 5

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<400> 51

Ala Phe Pro His Cys Leu Ala Phe  
1 5

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Gly Tyr Pro Ala Leu Met Pro Leu Tyr  
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<210> 53  
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Lys Tyr Thr Ser Phe Pro Trp Leu Leu  
1 5

<210> 54  
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<400> 54

Ser Tyr Ile Pro Ser Ala Glu Lys Ile  
1 5

<210> 55  
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<400> 55

Leu Gln Ser Leu Thr Asn Leu Leu Ser Ser Asn Leu Ser Trp Leu  
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<210> 56  
<211> 15  
<212> PRT

<213> Hepatitis B Virus

<400> 56

Lys Gln Ala Phe Thr Phe Ser Pro Thr Tyr Lys Ala Phe Leu Cys  
1 5 10 15

<210> 57

<211> 15

<212> PRT

<213> Hepatitis B Virus

<400> 57

Ala Gly Phe Phe Leu Leu Thr Arg Ile Leu Thr Ile Pro Gln Ser  
1 5 10 15

<210> 58

<211> 15

<212> PRT

<213> Hepatitis B Virus

<400> 58

Gly Thr Ser Phe Val Tyr Val Pro Ser Ala Leu Asn Pro Ala Asp  
1 5 10 15

<210> 59

<211> 20

<212> PRT

<213> Hepatitis B Virus

<400> 59

Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala Tyr Arg Pro Pro  
1 5 10 15

Asn Ala Pro Ile  
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<210> 60

<211> 15

<212> PRT

<213> Hepatitis B Virus

<400> 60

Arg His Tyr Leu His Thr Leu Trp Lys Ala Gly Ile Leu Tyr Lys  
1 5 10 15

<210> 61

<211> 15

<212> PRT

<213> Hepatitis B Virus

<400> 61

Leu Val Pro Phe Val Gln Trp Phe Val Gly Leu Ser Pro Thr Val  
1 5 10 15

<210> 62  
<211> 15  
<212> PRT  
<213> Hepatitis B Virus

<400> 62

Leu His Leu Tyr Ser His Pro Ile Ile Leu Gly Phe Arg Lys Ile  
1 5 10 15

<210> 63  
<211> 15  
<212> PRT  
<213> Hepatitis B Virus

<400> 63

Pro Phe Leu Leu Ala Gln Phe Thr Ser Ala Ile Cys Ser Val Val  
1 5 10 15

<210> 64  
<211> 15  
<212> PRT  
<213> Hepatitis B Virus

<400> 64

Lys Gln Cys Phe Arg Lys Leu Pro Val Asn Arg Pro Ile Asp Trp  
1 5 10 15

<210> 65  
<211> 15  
<212> PRT  
<213> Hepatitis B Virus

<400> 65

Ala Ala Asn Trp Ile Leu Arg Gly Thr Ser Phe Val Tyr Val Pro  
1 5 10 15

<210> 66  
<211> 20  
<212> PRT  
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<400> 66

Pro His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu  
1 5 10 15

Met Thr Leu Ala  
20

<210> 67  
<211> 15  
<212> PRT  
<213> Hepatitis B Virus

<400> 67

Leu Cys Gln Val Phe Ala Asp Ala Thr Pro Thr Gly Trp Gly Leu  
1 5 10 15

<210> 68  
<211> 15  
<212> PRT  
<213> Hepatitis B Virus

<400> 68

Glu Ser Arg Leu Val Val Asp Phe Ser Gln Phe Ser Arg Gly Asn  
1 5 10 15

<210> 69  
<211> 15  
<212> PRT  
<213> Hepatitis B Virus

<400> 69

Val Gly Pro Leu Thr Val Asn Glu Lys Arg Arg Leu Lys Leu Ile  
1 5 10 15

<210> 70  
<211> 15  
<212> PRT  
<213> Hepatitis B Virus

<400> 70

Ser Ser Asn Leu Ser Trp Leu Ser Leu Asp Val Ser Ala Ala Phe  
1 5 10 15

<210> 71  
<211> 1251  
<212> DNA  
<213> Hepatitis B Virus

<400> 71

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ccttggctcc ttaatgccgc cgcttaggtt tcatggctga gtctgctagt acctttcaat 180

gcggctttcc cacattgcct agcttttagc tatatgaaag ctgcttttagt cgtggacttt 240

tcacagtttgcagaggagc aatcctgctg ctatgtctga tattccttctt aaacgcagca 300

gccccacacac tctggaaagc tggtatcctt tacaagaaag cctggatgtatgg 360

ggaccaggcc	tctacaaagc	ataccctgcc	ctgatgccac	tatacgcatg	cattggcg	420
gcagccttgt	tatccctttt	agtaccgttt	gtcaacgccc	cagcgggatt	tctattaacc	480
agaatcctga	cgatataatgc	tgccgccatt	ccgatcccaa	gttcctggc	attcaaagca	540
gccgcggagt	atctggtttc	atttggcgta	tggaacctgc	caagcgactt	cttccttct	600
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<212> PRT  
<213> Hepatitis B Virus

<400> 72

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									20					25		30

Ala	Ala	Ala	Lys	Tyr	Thr	Ser	Phe	Pro	Trp	Leu	Leu	Asn	Ala	Ala	Ala	
									35					40		45

Arg	Phe	Ser	Trp	Leu	Ser	Leu	Leu	Val	Pro	Phe	Asn	Ala	Ala	Phe	Pro	
									50					55		60

His	Cys	Leu	Ala	Phe	Ser	Tyr	Met	Lys	Ala	Ala	Leu	Val	Val	Asp	Phe	
									65					70		75

Ser	Gln	Phe	Ser	Arg	Gly	Ala	Ile	Leu	Leu	Cys	Leu	Ile	Phe	Leu		
														85		90

Leu Asn Ala Ala Ala His Thr Leu Trp Lys Ala Gly Ile Leu Tyr Lys  
100 105 110

Lys Ala Trp Met Met Trp Tyr Trp Gly Pro Ser Leu Tyr Lys Ala Tyr  
115 120 125

Pro Ala Leu Met Pro Leu Tyr Ala Cys Ile Gly Ala Ala Ala Trp Leu  
130 135 140

Ser Leu Leu Val Pro Phe Val Asn Ala Ala Ala Gly Phe Leu Leu Thr  
145 150 155 160

Arg Ile Leu Thr Ile Asn Ala Ala Ala Ile Pro Ile Pro Ser Ser Trp  
165 170 175

Ala Phe Lys Ala Ala Ala Glu Tyr Leu Val Ser Phe Gly Val Trp Asn  
180 185 190

Leu Pro Ser Asp Phe Phe Pro Ser Val Lys Ala Ala Ala Phe Leu Pro  
195 200 205

Ser Asp Phe Phe Pro Ser Val Lys Ala Ala Ala Asp Leu Leu Asp Thr  
210 215 220

Ala Ser Ala Leu Tyr Asn Ser Trp Pro Lys Phe Ala Val Pro Asn Leu  
225 230 235 240

Lys Ala Ala Ala Ser Ala Ile Cys Ser Val Val Arg Arg Lys Leu Ser  
245 250 255

Leu Asp Val Ser Ala Ala Phe Tyr Asn Ala Ala Lys Phe Val Ala  
260 265 270

Ala Trp Thr Leu Lys Ala Ala Ala Lys Ala Ala Asn Val Ser Ile Pro  
275 280 285

Trp Thr His Lys Gly Ala Ala Gly Leu Ser Arg Tyr Val Ala Arg Leu  
290 295 300

Asn Ala Ala Ala Ser Thr Leu Pro Glu Thr Thr Val Val Arg Arg Lys  
305 310 315 320

His Pro Ala Ala Met Pro His Leu Leu Lys Ala Ala Ala Arg Trp Met  
325 330 335

Cys Leu Arg Arg Phe Ile Ile Asn Ala Ser Phe Cys Gly Ser Pro Tyr  
340 345 350

Lys Ala Ala Tyr Met Asp Asp Val Val Leu Gly Val Asn Ala Leu Trp  
355 360 365

Phe His Ile Ser Cys Leu Thr Phe Lys Ala Ala Ala Thr Pro Ala Arg  
370 375 380

Val Thr Gly Gly Val Phe Lys Ala Ala Ala Leu Thr Phe Gly Arg Glu  
385 390 395 400

Thr Val Leu Glu Tyr Lys Gln Ala Phe Thr Phe Ser Pro Thr Tyr Lys  
405 410 415

<210> 73  
<211> 1035  
<212> DNA  
<213> Hepatitis B virus

<400> 73  
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agcttcgtct acgtgcccgg gcccggacca gggaaaggagg ctttacctt ctctcccact 960  
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aaagccgctg cctga 1035

<210> 74  
<211> 344

<212> PRT

<213> Hepatitis B virus

<400> 74

Met Gly Thr Ser Phe Val Tyr Val Pro Ser Ala Leu Asn Pro Ala Asp  
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Gly Pro Gly Pro Gly Leu Cys Gln Val Phe Ala Asp Ala Thr Pro Thr  
20 25 30

Gly Trp Gly Leu Gly Pro Gly Pro Gly Arg His Tyr Leu His Thr Leu  
35 40 45

Trp Lys Ala Gly Ile Leu Tyr Lys Gly Pro Gly Pro Gly Pro His His  
50 55 60

Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr Leu  
65 70 75 80

Ala Gly Pro Gly Pro Gly Glu Ser Arg Leu Val Val Asp Phe Ser Gln  
85 90 95

Phe Ser Arg Gly Asn Gly Pro Gly Pro Gly Pro Phe Leu Leu Ala Gln  
100 105 110

Phe Thr Ser Ala Ile Cys Ser Val Val Gly Pro Gly Pro Gly Leu Val  
115 120 125

Pro Phe Val Gln Trp Phe Val Gly Leu Ser Pro Thr Val Gly Pro Gly  
130 135 140

Pro Gly Leu His Leu Tyr Ser His Pro Ile Ile Leu Gly Phe Arg Lys  
145 150 155 160

Ile Gly Pro Gly Pro Gly Ser Ser Asn Leu Ser Trp Leu Ser Leu Asp  
165 170 175

Val Ser Ala Ala Phe Gly Pro Gly Pro Gly Leu Gln Ser Leu Thr Asn  
180 185 190

Leu Leu Ser Ser Asn Leu Ser Trp Leu Gly Pro Gly Pro Gly Ala Gly  
195 200 205

Phe Phe Leu Leu Thr Arg Ile Leu Thr Ile Pro Gln Ser Gly Pro Gly  
210 215 220

Pro Gly Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala Tyr Arg

225

230

235

240

Pro Pro Asn Ala Pro Ile Gly Pro Gly Pro Gly Val Gly Pro Leu Thr  
245 250 255

Val Asn Glu Lys Arg Arg Leu Lys Leu Ile Gly Pro Gly Pro Gly Lys  
260 265 270

Gln Cys Phe Arg Lys Leu Pro Val Asn Arg Pro Ile Asp Trp Gly Pro  
275 280 285

Gly Pro Gly Ala Ala Asn Trp Ile Leu Arg Gly Thr Ser Phe Val Tyr  
290 295 300

Val Pro Gly Pro Gly Pro Gly Lys Gln Ala Phe Thr Phe Ser Pro Thr  
305 310 315 320

Tyr Lys Ala Phe Leu Cys Gly Pro Gly Pro Gly Ala Lys Phe Val Ala  
325 330 335

Ala Trp Thr Leu Lys Ala Ala Ala  
340

<210> 75  
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<212> PRT  
<213> Hepatitis B virus

<400> 75

Gly Ile His Leu Asn Ala Ala Ala Lys Tyr Thr Ser  
1 5 10

<210> 76  
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<212> PRT  
<213> Homo sapiens

<400> 76

Gly Ile His Leu Asn Met Ala Ala Gly Ser Gly Val  
1 5 10

<210> 77  
<211> 12  
<212> PRT  
<213> Hepatitis B virus

<400> 77

Pro Trp Leu Leu Asn Ala Ala Ala Arg Phe Ser Trp  
1 5 10

<210> 78

<211> 12

<212> PRT

<213> Homo sapiens

<400> 78

Pro Trp Leu Leu Asn Ala Thr Val Glu Glu Asn Ile  
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<210> 79

<211> 11

<212> PRT

<213> Hepatitis B virus

<400> 79

Leu Val Pro Phe Asn Ala Ala Phe Pro His Cys  
1 5 10

<210> 80

<211> 11

<212> PRT

<213> Homo sapiens

<400> 80

Ser Trp Leu Phe Asp Ala Ala Phe Val His Cys  
1 5 10

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gatggatgtg cctcagaaga ttcataataa acgcttcttt ctgtgggtca ccctacaaag	1080
ccgcttacat ggacgatgtg gtcctcgag tgaatgccct ctgggtccat atcagctgcc	1140
tgacattcaa ggcagccgc acccccgctc gtgtgacagg aggtgtcttc aaagccgcgg	1200
cactgacttt cggtcggaa actgtattgg aatataagca ggccttcaca ttctccccaa	1260
catacaagaa cgccaggaact tctttgtgt atgtcccttc cgctctgaac ccagcagacg	1320
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tcatgaccct ggccggacct ggaccgggg agagcagact ggtgggtggat ttcagccaat	1560
tcagcagagg aaacggaccc ggccctgggc cttttctgct ggctcagttt acatctgcta	1620
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tgtctgccgc ctttggccct ggaccaggcc tgcaaagcct gactaatctg ctcagcagca	1860
acctgtcctg gctgggacct ggcccagggg ctggcttctt tctgctcacc cggattctca	1920
caattccccca gtccggacca ggaccaggag tcagttcgg ggtgtggatc aggacccctc	1980
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tgaatgagaa ggcgcggctg aagctgatcg gcccggccc tggcaagcag tgcttcgca	2100
aactgcccgt gaacagaccc attgattggg gccccggccc tggagcagcc aactggattc	2160
tcaggggaac aagcttcgtc tacgtgccccg ggcccggacc agggaaagcag gctttacct	2220
tctctccac ttacaaggcc ttccctctgtg ggcaggccc cggcgccaag tttgtggcag	2280
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<210> 206

<211> 763

<212> PRT

<213> Hepatitis B virus

<400> 206

Met Gly Met Gln Val Gln Ile Gln Ser Leu Phe Leu Leu Leu Leu Trp  
1 5 10 15

Val Pro Gly Ser Arg Gly Phe Leu Leu Ser Leu Gly Ile His Leu Asn  
20 25 30

Ala Ala Ala Lys Tyr Thr Ser Phe Pro Trp Leu Leu Asn Ala Ala Ala  
35 40 45

Arg Phe Ser Trp Leu Ser Leu Leu Val Pro Phe Asn Ala Ala Phe Pro  
50 55 60

His Cys Leu Ala Phe Ser Tyr Met Lys Ala Ala Leu Val Val Asp Phe  
65 70 75 80

Ser Gln Phe Ser Arg Gly Ala Ile Leu Leu Cys Leu Ile Phe Leu  
85 90 95

Leu Asn Ala Ala Ala His Thr Leu Trp Lys Ala Gly Ile Leu Tyr Lys  
100 105 110

Lys Ala Trp Met Met Trp Tyr Trp Gly Pro Ser Leu Tyr Lys Ala Tyr  
115 120 125

Pro Ala Leu Met Pro Leu Tyr Ala Cys Ile Gly Ala Ala Ala Trp Leu  
130 135 140

Ser Leu Leu Val Pro Phe Val Asn Ala Ala Ala Gly Phe Leu Leu Thr  
145 150 155 160

Arg Ile Leu Thr Ile Asn Ala Ala Ala Ile Pro Ile Pro Ser Ser Trp  
165 170 175

Ala Phe Lys Ala Ala Ala Glu Tyr Leu Val Ser Phe Gly Val Trp Asn  
180 185 190

Leu Pro Ser Asp Phe Phe Pro Ser Val Lys Ala Ala Ala Phe Leu Pro  
195 200 205

Ser Asp Phe Phe Pro Ser Val Lys Ala Ala Ala Asp Leu Leu Asp Thr  
210 215 220

Ala Ser Ala Leu Tyr Asn Ser Trp Pro Lys Phe Ala Val Pro Asn Leu  
225 230 235 240

Lys Ala Ala Ala Ser Ala Ile Cys Ser Val Val Arg Arg Lys Leu Ser  
245 250 255

Leu Asp Val Ser Ala Ala Phe Tyr Asn Ala Ala Ala Lys Phe Val Ala  
260 265 270

Ala Trp Thr Leu Lys Ala Ala Ala Lys Ala Ala Asn Val Ser Ile Pro  
275 280 285

Trp Thr His Lys Gly Ala Ala Gly Leu Ser Arg Tyr Val Ala Arg Leu  
290 295 300

Asn Ala Ala Ala Ser Thr Leu Pro Glu Thr Thr Val Val Arg Arg Lys  
305 310 315 320

His Pro Ala Ala Met Pro His Leu Leu Lys Ala Ala Ala Arg Trp Met  
325 330 335

Cys Leu Arg Arg Phe Ile Ile Asn Ala Ser Phe Cys Gly Ser Pro Tyr  
340 345 350

Lys Ala Ala Tyr Met Asp Asp Val Val Leu Gly Val Asn Ala Leu Trp  
355 360 365

Phe His Ile Ser Cys Leu Thr Phe Lys Ala Ala Ala Thr Pro Ala Arg  
370 375 380

Val Thr Gly Gly Val Phe Lys Ala Ala Ala Leu Thr Phe Gly Arg Glu  
385 390 395 400

Thr Val Leu Glu Tyr Lys Gln Ala Phe Thr Phe Ser Pro Thr Tyr Lys  
405 410 415

Asn Ala Gly Thr Ser Phe Val Tyr Val Pro Ser Ala Leu Asn Pro Ala  
420 425 430

Asp Gly Pro Gly Pro Gly Leu Cys Gln Val Phe Ala Asp Ala Thr Pro  
435 440 445

Thr Gly Trp Gly Leu Gly Pro Gly Pro Gly Arg His Tyr Leu His Thr  
450 455 460

Leu Trp Lys Ala Gly Ile Leu Tyr Lys Gly Pro Gly Pro Gly Pro His  
465 470 475 480

His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr  
485 490 495

Leu Ala Gly Pro Gly Pro Gly Glu Ser Arg Leu Val Val Asp Phe Ser

500

505

510

Gln Phe Ser Arg Gly Asn Gly Pro Gly Pro Gly Pro Phe Leu Leu Ala  
515 520 525

Gln Phe Thr Ser Ala Ile Cys Ser Val Val Gly Pro Gly Pro Gly Leu  
530 535 540

Val Pro Phe Val Gln Trp Phe Val Gly Leu Ser Pro Thr Val Gly Pro  
545 550 555 560

Gly Pro Gly Leu His Leu Tyr Ser His Pro Ile Ile Leu Gly Phe Arg  
565 570 575

Lys Ile Gly Pro Gly Pro Gly Ser Ser Asn Leu Ser Trp Leu Ser Leu  
580 585 590

Asp Val Ser Ala Ala Phe Gly Pro Gly Pro Gly Leu Gln Ser Leu Thr  
595 600 605

Asn Leu Leu Ser Ser Asn Leu Ser Trp Leu Gly Pro Gly Pro Gly Ala  
610 615 620

Gly Phe Phe Leu Leu Thr Arg Ile Leu Thr Ile Pro Gln Ser Gly Pro  
625 630 635 640

Gly Pro Gly Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala Tyr  
645 650 655

Arg Pro Pro Asn Ala Pro Ile Gly Pro Gly Pro Gly Val Gly Pro Leu  
660 665 670

Thr Val Asn Glu Lys Arg Arg Leu Lys Leu Ile Gly Pro Gly Pro Gly  
675 680 685

Lys Gln Cys Phe Arg Lys Leu Pro Val Asn Arg Pro Ile Asp Trp Gly  
690 695 700

Pro Gly Pro Gly Ala Ala Asn Trp Ile Leu Arg Gly Thr Ser Phe Val  
705 710 715 720

Tyr Val Pro Gly Pro Gly Pro Gly Lys Gln Ala Phe Thr Phe Ser Pro  
725 730 735

Thr Tyr Lys Ala Phe Leu Cys Gly Pro Gly Pro Gly Ala Lys Phe Val  
740 745 750

Ala Ala Trp Thr Leu Lys Ala Ala Ala Gly Ser  
755 760

<210> 207  
<211> 2235  
<212> DNA  
<213> Hepatitis B virus

<400> 207  
atgggcatgc aggtgcagat ccagagcctg ttccctgctcc tgctgtgggt gccaggaagc 60  
agaggctttc tcctgtccct gggcatccac ctgaacgccc ctgcaaagta caccagcttc 120  
ccctggctgc tcaacgccc tgcccggttc agctggctgt ccctgctcgt gcccttcaac 180  
gcagccttcc cccactgcct ggccttcagc tacatgaaag cagccctgggt ggtcgacttc 240  
tcccagttca gccggggagc catcctgctc ctgtgcctga tctttctgct caacgcccgt 300  
gcccacaccc tgtggaaggc tggcatcctg tacaagaaag cctggatgat gtggtaactgg 360  
ggaccacagcc tgtacaaggc atatccagcc ctgatgcccc tgtacgcctg catcgagct 420  
gccgcattgc tgagcctcct ggtgccttc gtgaacgccc ctgcccgggtt cctgctgaca 480  
agaatcctga ccatcaacgc cgccagccatt cctatcccct ccagctgggc cttcaaggca 540  
gccgcctgact acctggtagt cttcgagtc tggAACCTGC ccagcgactt cttcccccagc 600  
gtgaaagccg cagccttcct gccctccgac ttctttccca gcgtgaaggc cgccagccat 660  
ctcctggaca ccgctagcgc cctgtacaac agctggccca agttcgccgt gcccacaccc 720  
aaggcccgag ccagcgccat ctgcagcgtg gtcagacgga agctgcctt cgatgtgagc 780  
gccgccttct acaacgcccgc cgccaaagttc gtggccgcct ggaccctgaa agccgctgcc 840  
aaggcagcca acgtgagcat cccctggacc cacaaggag ccgcaggact gagccggat 900  
gtggccagac tgaacgcccgc tgccagcacc ctgccccgaga ccacagtgggt cagacggaaag 960  
caccggcccg ccatgccccca cctgctgaag gccgcagccc ggtggatgtg cctcagacgg 1020  
ttcatcatca acgttcctt ctgtggcagc ccctacaagg ccgcctacat ggatgacgtg 1080  
gtcctggag tgaacgcccct ctggttccac atcagctgcc tgaccttcaa agccgctgcc 1140  
acacccgcaa gagtgaccgg aggcgtgttc aaggctgcag ccctgacctt cggccggggag 1200  
accgtgctgg agtacaagca ggccttcacc ttcagccccca cctacaagaa cgccggcacc 1260  
agctttgtgt acgtcccaag cgccctgaat cccgcagacg gccccggccc cggactgtgc 1320  
caggtgttcg ccgatgccac accaaccgga tggggcctgg gcccctggacc cggcagacac 1380  
tacctgcata ccctgtggaa ggcaggaatc ctgtacaaag gccccggccc tggaccccat 1440  
cacaccgctc tgcggcagggc catcctgtgc tggggcgagc tcatgactct ggcaggaccc 1500  
ggcccccggcg aatccaggct ggtggtggac ttttagccagt tctccagagg caacggaccc 1560

ggcccaggac ctttcctgct cgcccagttc accagcgcca tctgcagcgt ggtcggacct 1620  
ggcccaggac tggtgccctt cgtgcagtgg ttcgtcggcc tcagccccac cgtcggacct 1680  
ggcccccggcc tgcacctcta cagccacccct atcattctgg gcttcagaaa gatcggacca 1740  
ggcccccggct ccagcaacct gtcctggctc agcctggacg tcagcgcagc cttcggaccc 1800  
ggccctggcc tgcagagcct gaccaacctg ctcagcagca acctcagctg gctggggcca 1860  
ggacccggcg caggcttctt tctgctcacc agaattcctga ccatccctca gagcggcccc 1920  
ggaccaggcg tgagcttcgg cgtgtggatt cggactcctc ccgcctacag accccccaaat 1980  
gcccccatecg gcccaggacc cggcgtcggc cctctgactg tgaacgagaa gcgaggactg 2040  
aagctgatecg gcccggacc aggcaaacag tgcttcagga agctccctgt gaacagacct 2100  
atcgactggg gcccggacc cggcgcagcc aactggattc tgagaggcac cagttcgtg 2160  
tacgtccctg gacccggccc tggcaagcaa gccttcaccc tcagccccac ctacaaggca 2220  
ttcctgtgcg gatag 2235

<210> 208

<211> 744

<212> PRT

<213> Hepatitis B virus

<400> 208

Met Gly Met Gln Val Gln Ile Gln Ser Leu Phe Leu Leu Leu Leu Trp  
1 5 10 15

Val Pro Gly Ser Arg Gly Phe Leu Leu Ser Leu Gly Ile His Leu Asn  
20 25 30

Ala Ala Ala Lys Tyr Thr Ser Phe Pro Trp Leu Leu Asn Ala Ala Ala  
35 40 45

Arg Phe Ser Trp Leu Ser Leu Leu Val Pro Phe Asn Ala Ala Phe Pro  
50 55 60

His Cys Leu Ala Phe Ser Tyr Met Lys Ala Ala Leu Val Val Asp Phe  
65 70 75 80

Ser Gln Phe Ser Arg Gly Ala Ile Leu Leu Cys Leu Ile Phe Leu  
85 90 95

Leu Asn Ala Ala Ala His Thr Leu Trp Lys Ala Gly Ile Leu Tyr Lys  
100 105 110

Lys Ala Trp Met Met Trp Tyr Trp Gly Pro Ser Leu Tyr Lys Ala Tyr  
115 120 125

Pro Ala Leu Met Pro Leu Tyr Ala Cys Ile Gly Ala Ala Ala Trp Leu  
130 135 140

Ser Leu Leu Val Pro Phe Val Asn Ala Ala Gly Phe Leu Leu Thr  
145 150 155 160

Arg Ile Leu Thr Ile Asn Ala Ala Ile Pro Ile Pro Ser Ser Trp  
165 170 175

Ala Phe Lys Ala Ala Ala Glu Tyr Leu Val Ser Phe Gly Val Trp Asn  
180 185 190

Leu Pro Ser Asp Phe Phe Pro Ser Val Lys Ala Ala Ala Phe Leu Pro  
195 200 205

Ser Asp Phe Phe Pro Ser Val Lys Ala Ala Ala Asp Leu Leu Asp Thr  
210 215 220

Ala Ser Ala Leu Tyr Asn Ser Trp Pro Lys Phe Ala Val Pro Asn Leu  
225 230 235 240

Lys Ala Ala Ala Ser Ala Ile Cys Ser Val Val Arg Arg Lys Leu Ser  
245 250 255

Leu Asp Val Ser Ala Ala Phe Tyr Asn Ala Ala Ala Lys Phe Val Ala  
260 265 270

Ala Trp Thr Leu Lys Ala Ala Ala Lys Ala Ala Asn Val Ser Ile Pro  
275 280 285

Trp Thr His Lys Gly Ala Ala Gly Leu Ser Arg Tyr Val Ala Arg Leu  
290 295 300

Asn Ala Ala Ala Ser Thr Leu Pro Glu Thr Thr Val Val Arg Arg Lys  
305 310 315 320

His Pro Ala Ala Met Pro His Leu Leu Lys Ala Ala Ala Arg Trp Met  
325 330 335

Cys Leu Arg Arg Phe Ile Ile Asn Ala Ser Phe Cys Gly Ser Pro Tyr  
340 345 350

Lys Ala Ala Tyr Met Asp Asp Val Val Leu Gly Val Asn Ala Leu Trp  
355 360 365

Phe His Ile Ser Cys Leu Thr Phe Lys Ala Ala Ala Thr Pro Ala Arg

	370	375	380
Val Thr Gly Gly Val Phe Lys Ala Ala Ala Leu Thr Phe Gly Arg Glu			
385	390	395	400
Thr Val Leu Glu Tyr Lys Gln Ala Phe Thr Phe Ser Pro Thr Tyr Lys			
405	410	415	
Asn Ala Gly Thr Ser Phe Val Tyr Val Pro Ser Ala Leu Asn Pro Ala			
420	425	430	
Asp Gly Pro Gly Pro Gly Leu Cys Gln Val Phe Ala Asp Ala Thr Pro			
435	440	445	
Thr Gly Trp Gly Leu Gly Pro Gly Pro Gly Arg His Tyr Leu His Thr			
450	455	460	
Leu Trp Lys Ala Gly Ile Leu Tyr Lys Gly Pro Gly Pro Gly Pro His			
465	470	475	480
His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr			
485	490	495	
Leu Ala Gly Pro Gly Pro Gly Glu Ser Arg Leu Val Val Asp Phe Ser			
500	505	510	
Gln Phe Ser Arg Gly Asn Gly Pro Gly Pro Gly Pro Phe Leu Leu Ala			
515	520	525	
Gln Phe Thr Ser Ala Ile Cys Ser Val Val Gly Pro Gly Pro Gly Leu			
530	535	540	
Val Pro Phe Val Gln Trp Phe Val Gly Leu Ser Pro Thr Val Gly Pro			
545	550	555	560
Gly Pro Gly Leu His Leu Tyr Ser His Pro Ile Ile Leu Gly Phe Arg			
565	570	575	
Lys Ile Gly Pro Gly Pro Gly Ser Ser Asn Leu Ser Trp Leu Ser Leu			
580	585	590	
Asp Val Ser Ala Ala Phe Gly Pro Gly Pro Gly Leu Gln Ser Leu Thr			
595	600	605	
Asn Leu Leu Ser Ser Asn Leu Ser Trp Leu Gly Pro Gly Pro Gly Ala			
610	615	620	

Gly Phe Phe Leu Leu Thr Arg Ile Leu Thr Ile Pro Gln Ser Gly Pro  
625 630 635 640

Gly Pro Gly Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala Tyr  
645 650 655

Arg Pro Pro Asn Ala Pro Ile Gly Pro Gly Pro Gly Val Gly Pro Leu  
660 665 670

Thr Val Asn Glu Lys Arg Arg Leu Lys Leu Ile Gly Pro Gly Pro Gly  
675 680 685

Lys Gln Cys Phe Arg Lys Leu Pro Val Asn Arg Pro Ile Asp Trp Gly  
690 695 700

Pro Gly Pro Gly Ala Ala Asn Trp Ile Leu Arg Gly Thr Ser Phe Val  
705 710 715 720

Tyr Val Pro Gly Pro Gly Pro Gly Lys Gln Ala Phe Thr Phe Ser Pro  
725 730 735

Thr Tyr Lys Ala Phe Leu Cys Gly  
740

<210> 209

<211> 621

<212> DNA

<213> Hepatitis B virus

<400> 209  
atggaaatgc aggtgcagat ccagaggctg tttctgctcc tcctgtgggt gccccgggtcc 60  
agaggacaca ccctgtggaa ggccggaatc ctgtataagg ccaagttcgt ggctgcctgg 120  
accctgaagg ctgccgttt cctgcctagc gatttcttgc ctagcgtgtt cctgctgtcc 180  
ctggaaatcc acctgtatat ggatgacgtg gtgctggag tggactgtc caggtacgtg 240  
gctaggctgt tcctgctgac cagaatcctg accatctcca ccctgccaga gaccaccgtg 300  
gtgaggaggc aggccttcac ctttagccct acctataagt ggctgagcct gctggtgccc 360  
tttgcgtatcc ctatccctag ctcctggct ttcaccccaag ccagggtgac cggaggagtg 420  
tttaagggtgg gaaacttcac cggcctgtat ctgcccagcg atttcttcc tagcgtgacc 480  
ctgtggaaagg ccgggatcct gtacaagaat gtgtccatcc cttggaccca caagctggtg 540  
gtggactttt cccagttcag cagatccgct atctgctccg tggtgaggag agctctgtatc 600  
ccactgtatc cctgtatctg a 621

<210> 210

<211> 206  
<212> PRT  
<213> Hepatitis B virus

<400> 210

Met Gly Met Gln Val Gln Ile Gln Ser Leu Phe Leu Leu Leu Trp  
1 5 10 15

Val Pro Gly Ser Arg Gly His Thr Leu Trp Lys Ala Gly Ile Leu Tyr  
20 25 30

Lys Ala Lys Phe Val Ala Ala Trp Thr Leu Lys Ala Ala Ala Phe Leu  
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Phe Leu Leu Ser Leu Gly Ile His  
50 55 60

Leu Tyr Met Asp Asp Val Val Leu Gly Val Gly Leu Ser Arg Tyr Val  
65 70 75 80

Ala Arg Leu Phe Leu Leu Thr Arg Ile Leu Thr Ile Ser Thr Leu Pro  
85 90 95

Glu Thr Thr Val Val Arg Arg Gln Ala Phe Thr Phe Ser Pro Thr Tyr  
100 105 110

Lys Trp Leu Ser Leu Leu Val Pro Phe Val Ile Pro Ile Pro Ser Ser  
115 120 125

Trp Ala Phe Thr Pro Ala Arg Val Thr Gly Gly Val Phe Lys Val Gly  
130 135 140

Asn Phe Thr Gly Leu Tyr Leu Pro Ser Asp Phe Phe Pro Ser Val Thr  
145 150 155 160

Leu Trp Lys Ala Gly Ile Leu Tyr Lys Asn Val Ser Ile Pro Trp Thr  
165 170 175

His Lys Leu Val Val Asp Phe Ser Gln Phe Ser Arg Ser Ala Ile Cys  
180 185 190

Ser Val Val Arg Arg Ala Leu Met Pro Leu Tyr Ala Cys Ile  
195 200 205

<210> 211  
<211> 660  
<212> DNA  
<213> Hepatitis B virus

<400> 211  
atgggaatgc aggtgcagat ccagagcctg tttctgctcc tcctgtgggt gcccgggtcc 60  
agaggacaca ccctgtggaa ggccggaatc ctgtataagg ccaagttcgt ggctgcctgg 120  
accctgaagg ctgccgcttt cctgccttagc gatttcttc ctgcgtgaa cttcctgctg 180  
tccctggaa tccacctgta tatggatgac gtggtgctgg gagtggact gtccaggtac 240  
gtggctaggc tgcccctgct gaccagaatc ctgaccatct ccaccctgcc agagaccacc 300  
gtggtgagga ggcaggcctt cacctttagc cctacctata agggagccgc tgcctggctg 360  
agcctgctgg tgccccttgc gaatatccct atccctagct cctggcttt caagacccca 420  
gccagggtga ccggaggagt gtttaaggtg ggaaacttca ccggcctgta taacctgccc 480  
agcgatttct ttccttagcgt gaagaccctg tggaaaggccg gaatcctgta caagaatgtg 540  
tccatccctt ggacccacaa gggagccgct ctggtggtgg actttccca gttcagcaga 600  
aattccgcta tctgctccgt ggtgaggaga gctctgatgc cactgtatgc ctgtatctga 660

<210> 212

<211> 219

<212> PRT

<213> Hepatitis B virus

<400> 212

Met Gly Met Gln Val Gln Ile Gln Ser Leu Phe Leu Leu Leu Leu Trp  
1 5 10 15

Val Pro Gly Ser Arg Gly His Thr Leu Trp Lys Ala Gly Ile Leu Tyr  
20 25 30

Lys Ala Lys Phe Val Ala Ala Trp Thr Leu Lys Ala Ala Ala Phe Leu  
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Asn Phe Leu Leu Ser Leu Gly Ile  
50 55 60

His Leu Tyr Met Asp Asp Val Val Leu Gly Val Gly Leu Ser Arg Tyr  
65 70 75 80

Val Ala Arg Leu Phe Leu Leu Thr Arg Ile Leu Thr Ile Ser Thr Leu  
85 90 95

Pro Glu Thr Thr Val Val Arg Arg Gln Ala Phe Thr Phe Ser Pro Thr  
100 105 110

Tyr Lys Gly Ala Ala Ala Trp Leu Ser Leu Leu Val Pro Phe Val Asn  
115 120 125

Ile Pro Ile Pro Ser Ser Trp Ala Phe Lys Thr Pro Ala Arg Val Thr  
130 135 140

Gly Gly Val Phe Lys Val Gly Asn Phe Thr Gly Leu Tyr Asn Leu Pro  
145 150 155 160

Ser Asp Phe Phe Pro Ser Val Lys Thr Leu Trp Lys Ala Gly Ile Leu  
165 170 175

Tyr Lys Asn Val Ser Ile Pro Trp Thr His Lys Gly Ala Ala Leu Val  
180 185 190

Val Asp Phe Ser Gln Phe Ser Arg Asn Ser Ala Ile Cys Ser Val Val  
195 200 205

Arg Arg Ala Leu Met Pro Leu Tyr Ala Cys Ile  
210 215

<210> 213

<211> 9

<212> PRT

<213> Hepatitis B virus

<400> 213

Thr Leu Asn Phe Pro Ile Ser Pro Ile  
1 5

<210> 214

<211> 10

<212> PRT

<213> Hepatitis B virus

<400> 214

Ser Leu Leu Asn Ala Thr Asp Ile Ala Val  
1 5 10

<210> 215

<211> 10

<212> PRT

<213> Hepatitis B virus

<400> 215

Gln Met Ala Val Phe Ile His Asn Phe Lys  
1 5 10

<210> 216

<211> 11

<212> PRT

<213> Hepatitis B virus

<400> 216

Val Thr Val Tyr Tyr Gly Val Pro Val Trp Lys  
1 5 10

<210> 217  
<211> 9  
<212> PRT  
<213> Hepatitis B virus

<400> 217

Phe Pro Val Arg Pro Gln Val Pro Leu  
1 5

<210> 218  
<211> 10  
<212> PRT  
<213> Hepatitis B virus

<400> 218

Tyr Pro Leu Ala Ser Leu Arg Ser Leu Phe  
1 5 10

<210> 219  
<211> 10  
<212> PRT  
<213> Hepatitis B virus

<400> 219

Val Ile Tyr Gln Tyr Met Asp Asp Leu Tyr  
1 5 10

<210> 220  
<211> 9  
<212> PRT  
<213> Hepatitis B virus

· <400> 220

Ile Tyr Gln Glu Pro Phe Lys Asn Leu  
1 5

<210> 221  
<211> 9  
<212> PRT  
<213> Hepatitis B virus

<400> 221

Ile Trp Gly Cys Ser Gly Lys Leu Ile  
1 5

<210> 222

<211> 4  
<212> PRT  
<213> Unknown

<220>  
<223> Peptide linker

<400> 222

Gly Ala Ala Ala  
1

<210> 223  
<211> 4  
<212> PRT  
<213> Unknown

<220>  
<223> Peptide linker

<400> 223

Asn Ala Ala Ala  
1

<210> 224  
<211> 4  
<212> PRT  
<213> Unknown

<220>  
<223> Peptide linker

<400> 224

Lys Ala Ala Ala  
1

<210> 225  
<211> 277  
<212> PRT  
<213> Human immunodeficiency virus

<400> 225

Met Gly Met Gln Val Gln Ile Gln Ser Leu Phe Leu Leu Leu Trp  
1 5 10 15

Val Pro Gly Ser Arg Gly Lys Leu Val Gly Lys Leu Asn Trp Ala Gly  
20 25 30

Ala Ala Ile Leu Lys Glu Pro Val His Gly Val Asn Ala Ala Cys Pro  
35 40 45

Lys Val Ser Phe Glu Pro Ile Lys Ile Pro Ile His Tyr Cys Ala Pro  
50 55 60

Ala Lys Ala Lys Phe Val Ala Ala Trp Thr Leu Lys Ala Ala Ala Lys  
65 70 75 80

Ala Phe Pro Val Arg Pro Gln Val Pro Leu Gly Ala Ala Lys Leu Thr  
85 90 95

Pro Leu Cys Val Thr Leu Gly Ala Ala Ala Val Leu Ala Glu Ala Met  
100 105 110

Ser Gln Val Lys Val Tyr Leu Ala Trp Val Pro Ala His Lys Gly Ala  
115 120 125

Ala Ala Ala Ile Phe Gln Ser Ser Met Thr Lys Lys Thr Thr Leu Phe  
130 135 140

Cys Ala Ser Asp Ala Lys Asn Ile Pro Tyr Asn Pro Gln Ser Gln Gly  
145 150 155 160

Val Val Lys His Pro Val His Ala Gly Pro Ile Ala Asn Val Thr Val  
165 170 175

Tyr Tyr Gly Val Pro Val Trp Lys Lys Ala Ala Ala Gln Met Ala Val  
180 185 190

Phe Ile His Asn Phe Lys Asn Ala Ala Ala Tyr Pro Leu Ala Ser Leu  
195 200 205

Arg Ser Leu Phe Asn Leu Thr Phe Gly Trp Cys Phe Lys Leu Asn Arg  
210 215 220

Ile Leu Gln Gln Leu Leu Phe Ile Asn Ala Lys Ile Gln Asn Phe Arg  
225 230 235 240

Val Tyr Tyr Arg Lys Ala Ala Val Thr Ile Lys Ile Gly Gly Gln Leu  
245 250 255

Lys Lys Val Pro Leu Gln Leu Pro Pro Leu Lys Ala Met Thr Asn Asn  
260 265 270

Pro Pro Ile Pro Val  
275

<210> 226

<211> 834

<212> DNA

<213> Human immunodeficiency virus

<400> 226  
atgggaatgc aggtgcagat ccagagcctg tttctgctcc tcctgtgggt gcccggatcc 60  
agaggaaagc tggtggcaa actcaactgg gccggagctg caatcctgaa ggagcccgtc 120  
cacggggta atgccgcttg ccctaaagtc agcttcgaac caattaagat ccccattcat 180  
tactgtgcac ctgccaaagc taagttgtg gccgcttgga ccctcaaggc cgctgcaaaa 240  
gccttcccag tgaggccccca ggtgcctctg ggccggctta aactcacacc actgtgcgtc 300  
actctggag ccgctgcagt gctggcagag gccatgtccc aagtgaaggt gtatctggct 360  
tgggtgccccg cccacaaggg ggccgctgca gccatcttc agtctagcat gaccaagaaa 420  
acaactctgt tctgtgcctc cgacgctaag aacatccctt ataatccaca gtctcagggc 480  
gtggtaagc atcccggtca cgccggaccc attgctaacg tgaccgtgta ctatggggtc 540  
ccagtgtgga agaaagccgc tgcacagatg gccgtgttta ttcacaattt caaaaacgcc 600  
gctgcataacc ccctcgccag cctgagatcc ctcttcaacc tgacattcgg ctggtgctt 660  
aagctgaacc ggatcctgca gcaactgctc tttatcaatg ctaaaatcca gaaattccgc 720  
gtctactata ggaaggctgc agtgactatc aaaattggcg gacaactgaa gaaagtgcct 780  
ctccagctgc cccctctcaa ggcaatgacc aacaatcccc ctatcccagt ctga 834

<210> 227

<211> 280

<212> PRT

<213> Human immunodeficiency virus

<400> 227

Met Gly Met Gln Val Gln Ile Gln Ser Leu Phe Leu Leu Leu Leu Trp  
1 5 10 15

Val Pro Gly Ser Arg Gly Ile Pro Ile His Tyr Cys Ala Pro Ala Lys  
20 25 30

Ala Ala Lys Ile Gln Asn Phe Arg Val Tyr Tyr Arg Lys Ala Ala Val  
35 40 45

Thr Ile Lys Ile Gly Gly Gln Leu Lys Lys Ala Lys Phe Val Ala Ala  
50 55 60

Trp Thr Leu Lys Ala Ala Lys Val Pro Leu Gln Leu Pro Pro Leu  
65 70 75 80

Lys Ala Ile Phe Gln Ser Ser Met Thr Lys Lys Leu Thr Pro Leu Cys  
85 90 95

Val Thr Leu Gly Ala Gln Met Ala Val Phe Ile His Asn Phe Lys Gly

100 105 110

Ala Lys Val Tyr Leu Ala Trp Val Pro Ala His Lys Asn Ala Ile Pro  
115 120 125

Tyr Asn Pro Gln Ser Gln Gly Val Val Lys Ala Ile Leu Lys Glu Pro  
130 135 140

Val His Gly Val Gly Ala Ala Ala Leu Thr Phe Gly Trp Cys Phe Lys  
145 150 155 160

Leu Asn Ala Val Leu Ala Glu Ala Met Ser Gln Val Asn Arg Ile Leu  
165 170 175

Gln Gln Leu Leu Phe Ile Asn Ala Ala Cys Pro Lys Val Ser Phe  
180 185 190

Glu Pro Ile Lys Val Thr Val Tyr Tyr Gly Val Pro Val Trp Lys Lys  
195 200 205

Ala Ala His Pro Val His Ala Gly Pro Ile Ala Asn Ala Ala Ala Tyr  
210 215 220

Pro Leu Ala Ser Leu Arg Ser Leu Phe Asn Ala Ala Ala Thr Thr Leu  
225 230 235 240

Phe Cys Ala Ser Asp Ala Lys Asn Lys Leu Val Gly Lys Leu Asn Trp  
245 250 255

Ala Asn Ala Ala Ala Phe Pro Val Arg Pro Gln Val Pro Leu Asn Met  
260 265 270

Thr Asn Asn Pro Pro Ile Pro Val  
275 280

<210> 228  
<211> 843  
<212> DNA  
<213> Human immunodeficiency virus

<400> 228  
atggggatgc aggtgcagat ccagagcctg tttctgctcc tcctgtgggt gcccggatcc 60  
agaggaatcc ccattcacta ctgcgcacct gctaaggcag caaaaatcca gaacttcagg  
gtgttattaca gaaaaggctgc agtcaccatt aaaatcggcg gacaactgaa gaaagccaaag  
tttgtggccg cttggacact caaggccgct gcaaagggtcc cactgcagct ccccccctctg 120  
aaggccatct tccagagctc catgactaag aaactgaccc cactgtgtgt gacactcggg 180  
240

300

ccccagatgg ctgtgttcat ccataatttt aaaggcgcca aggtctacct ggcttgggtg	360
cccgcacaca agaacgccat tccttacaat ccacagtctc aaggagtggt caaagctatt	420
ctgaaggagc ccgtgcacgg ggtggcgcc gctgcactca ctttcggatg gtgctttaaa	480
ctgaacgccc tgctggctga agccatgagc caggtcaatc ggatcctgca gcaactgctc	540
ttcattaacg ccgctgcattt tcctaaggtg tccttcgagc caatcaaagt gaccgtgtat	600
tacggggtcc ccgtgtggaa gaaagccgct catcctgtcc acgcaggccc aatcgccaaac	660
gccgctgcat atccccctcgc ctctctgcgc agcctgttta acgcccgtc aacaacccctc	720
ttttgcgcct ccgacgctaa gaataaaactg gtgggaaagc tgaactgggc caacgcagct	780
gcattccctg tgaggccaca ggtccccctc aatatgacta acaatcccc tatcccaagtg	840
tqa	843

<210> 229

<211> 211

<212> PRT

<213> Human immunodeficiency virus

<400> 229

Met	Gln	Val	Gln	Ile	Gln	Ser	Leu	Phe	Leu	Leu	Leu	Leu	Trp	Val	Pro
1					5				10					15	

Gly Ser Arg Gly Lys Leu Val Gly Lys Leu Asn Trp Ala Met Ala Ser  
20 25 30

Asp Phe Asn Leu Pro Pro Val Ala Ile Phe Gln Ser Ser Met Thr Lys  
35 40 45

Val Thr Ile Lys Ile Gly Gly Gln Leu Lys Arg Ile Leu Gln Gln Leu  
50 55 60

Leu Phe Ile Met Ala Val Phe Ile His Asn Phe Lys Ile Pro Tyr Asn  
 65 70 75 80

Pro Gln Ser Gln Gly Val Val Thr Thr Leu Phe Cys Ala Ser Asp Ala  
85 90 95

Lys Ile Leu Lys Glu Pro Val His Gly Val Gln Met Ala Val Phe Ile  
100 105 110

His Asn Phe Lys Gly Ala Ala Val Phe Ile His Asn Phe Lys Arg Cys  
115 120 125

Pro Lys Val Ser Phe Glu Pro Ile Lys Ile Gln Asn Phe Arg Val Tyr  
130 135 140

Tyr Arg Leu Thr Phe Gly Trp Cys Phe Lys Leu Gln Val Pro Leu Arg  
145 150 155 160

Pro Met Thr Tyr Lys Met Thr Asn Asn Pro Pro Ile Pro Val Thr Val  
165 170 175

Tyr Tyr Gly Val Pro Val Trp Lys Val Leu Ala Glu Ala Met Ser Gln  
180 185 190

Val Ile Pro Ile His Tyr Cys Ala Pro Ala Lys Leu Thr Pro Leu Cys  
195 200 205

Val Thr Leu  
210

<210> 230

<211> 633

<212> DNA

<213> Human immunodeficiency virus

<400> 230

atgcaggtgc agatccagag cctgtttctg ctcctcctgt ggggtccccgg atccagagga 60

aagctggtgg ggaagctgaa ctggggccatg gccagcgttca accctgccc ccccggtggcc 120

atcttccaga gcagcatgac caaggtgacc atcaagatcg gggggcagct gaagaggatc 180

ctgcagcagc tgctgttcat catggccgtg ttcatccaca acttcaagat cccctacaac 240

ccccagagcc aggggggtggt gaccaccctg ttctgcgcca gcgatgccaa gatcctgaag 300

gagcccggtgc acgggggtgca gatggccgtg ttcatccaca acttcaaggg cgccgcccgtg 360

ttcatccaca acttcaagag gtgccccaaag gtgagcttcg agcccatcaa gatccagaac 420

ttcagggtgt actacaggct gacccctggg tggtgcttca agctcaggt gccccctgagg 480

cccatgacct acaagatgac caacaacccc cccatccccg tgaccgtgta ctacggggtg 540

cccggtgtgga aggtgctggc cgaggccatg agccaggtga tccccatcca ctactgcgcc 600

cccgccaaagc tgaccccccgt gtcgtgacc ctg 633

<210> 231

<211> 585

<212> PRT

<213> Human immunodeficiency virus

<400> 231

Met Gly Met Gln Val Gln Ile Gln Ser Leu Phe Leu Leu Leu Trp  
1 5 10 15

Val Pro Gly Ser Arg Gly Tyr Trp Gln Ala Thr Trp Ile Pro Glu Trp

20

25

30

Lys Ala Ile Phe Gln Ser Ser Met Thr Lys Lys Val Tyr Leu Ala Trp  
35 40 45

Val Pro Ala His Lys Asn Ala Ala Cys Pro Lys Val Ser Phe Glu Pro  
50 55 60

Ile Lys His Pro Val His Ala Gly Pro Ile Ala Asn Leu Thr Phe Gly  
65 70 75 80

Trp Cys Phe Lys Leu Asn Lys Met Ile Gly Gly Ile Gly Gly Phe Ile  
85 90 95

Lys Phe Arg Asp Tyr Val Asp Arg Phe Tyr Lys Ala Ala Arg Ile  
100 105 110

Leu Gln Gln Leu Leu Phe Ile Asn Thr Thr Leu Phe Cys Ala Ser Asp  
115 120 125

Ala Lys Asn Gln Met Val His Gln Ala Ile Ser Pro Arg Gly Ala Lys  
130 135 140

Leu Val Gly Lys Leu Asn Trp Ala Gly Ala Ala Ala Ile Tyr Glu Thr  
145 150 155 160

Tyr Gly Asp Thr Trp Lys Ala Ala Gln Val Pro Leu Arg Pro Met Thr  
165 170 175

Tyr Lys Gly Ala Ala Ala Val Thr Val Leu Asp Val Gly Asp Ala Tyr  
180 185 190

Asn Ala Ala Ala Arg Tyr Leu Lys Asp Gln Gln Leu Leu Asn Thr Leu  
195 200 205

Asn Phe Pro Ile Ser Pro Ile Asn Met Thr Asn Asn Pro Pro Ile Pro  
210 215 220

Val Asn Ala Pro Tyr Asn Thr Pro Val Phe Ala Ile Lys Ala Ala Ala  
225 230 235 240

Val Pro Leu Gln Leu Pro Pro Leu Lys Ala Ala Ile Pro Tyr Asn Pro  
245 250 255

Gln Ser Gln Gly Val Val Lys Ala Leu Leu Gln Leu Thr Val Trp Gly  
260 265 270

Ile Gly Ala Ala Ile Leu Lys Glu Pro Val His Gly Val Asn Ala Ala  
275 280 285

Ala Phe Pro Ile Ser Pro Ile Glu Thr Val Lys Val Trp Lys Glu Ala  
290 295 300

Thr Thr Thr Leu Phe Lys Ala Ala Ala Val Thr Ile Lys Ile Gly Gly  
305 310 315 320

Gln Leu Lys Lys Ile Tyr Gln Glu Pro Phe Lys Asn Leu Lys Ala Ala  
325 330 335

Ala Val Leu Ala Glu Ala Met Ser Gln Val Asn Leu Val Gly Pro Thr  
340 345 350

Pro Val Asn Ile Gly Ala Ala Ala Glu Val Asn Ile Val Thr Asp Ser  
355 360 365

Gln Tyr Lys Ala Ala Ala Ile Pro Ile His Tyr Cys Ala Pro Ala Lys  
370 375 380

Ala Val Ile Tyr Gln Tyr Met Asp Asp Leu Tyr Lys Ala Ala Ala Gln  
385 390 395 400

Met Ala Val Phe Ile His Asn Phe Lys Asn Ala Ala Thr Tyr Gln Ile  
405 410 415

Tyr Gln Glu Pro Phe Lys Pro Tyr Asn Glu Trp Thr Leu Glu Leu Lys  
420 425 430

Ala Lys Ile Gln Asn Phe Arg Val Tyr Tyr Arg Lys Ala Phe Pro Val  
435 440 445

Arg Pro Gln Val Pro Leu Gly Ala Ala Ala Ile Trp Gly Cys Ser Gly  
450 455 460 480

Lys Leu Ile Lys Val Met Ile Val Trp Gln Val Asp Arg Asn Ala Ala  
465 470 475 480

Lys Ala Ala Cys Trp Trp Ala Gly Ile Lys Ala Lys Phe Val Ala Ala  
485 490 495

Trp Thr Leu Lys Ala Ala Ala Lys Leu Thr Pro Leu Cys Val Thr Leu  
500 505 510

Asn Ala Ala Met Ala Ser Asp Phe Asn Leu Pro Pro Val Lys Ser Leu  
515 520 525

Leu Asn Ala Thr Asp Ile Ala Val Asn Val Thr Val Tyr Tyr Gly Val  
530 535 540 545

Pro Val Trp Lys Lys Ala Ala Ala Ile Ile Arg Ile Leu Gln Gln  
545 550 555 560

Leu Lys Arg Ala Met Ala Ser Asp Phe Asn Leu Asn Ala Ala Ala Tyr  
565 570 575

Pro Leu Ala Ser Leu Arg Ser Leu Phe  
580 585

<210> 232

<211> 1758

<212> DNA

<213> Human immunodeficiency virus

<400> 232  
atggggatgc aggtgcagat ccagagcctg tttctgctcc tcctgtgggt gcccggatct 60  
agaggatact ggcaagctac ttggattcca gaatggaaag ctatcttca atcctcaatg 120  
acgaagaagg tatacctggc atgggtccca gcacacaaga acgcccgttg cccaaaggtg 180  
tcctttgaac ccattaaaca cccagtgcac gcagggccaa tagcgaattt gacattcggg 240  
tggtgcttca aactaaacaa aatgatcggc ggcattggag gctttatcaa gtttagagat 300  
tacgtggacc gattctataa agccgctgcc cgtatactcc agcagctact attcatcaac 360  
accactctct tctgcgccttc agacgctaag aaccaaattgg tacaccaagc cataagccct 420  
agaggagcca agctcgttagg gaaattaaat tggcggttgc cagcagcaat ctacgagact 480  
tacggcgata cctggaaagc agcccagggtt ccgttacgcc caatgaccta taaaggcgca 540  
gcagcagtaa cagttctaga tgttaggagac gcttacaacgc ctgcccgaag atacctaaaa 600  
gatcagcagt tactcaacac actaaatttc ccaatttagcc cgataaacat gacaaataac 660  
ccaccaattc ccgtcaatgc tccctacaac actccagttat tcgcaatcaa agccgctgt 720  
gtccccctgc agctccctcc tctgaaagct gcgataccctt acaacccaca gagccaagg 780  
gttgc当地 cactgcttca gctaacagtt tggggatttgc gtcgtcaat tctaaaagag 840  
ccagttcatg gggtaacgc cggcccttc ccaatcagtc ctattgagac tgtgaaagta 900  
tggaaagaag ccacaaccac acttttaag gcagccgcag ttacaattaa aatagggggc 960  
caacttaaga aaatatacca ggaaccttca aagaatctca aagccgctgc agtgcgtcc 1020  
gaggctatgt cacaggtgaa tttggtcggc ccaacaccccg taaacatcgg agccgcagcc 1080  
gaagtgaaca tagtcaccga ctcacagtac aaagccgctg caatacccat acattattgt 1140  
gctcccgcaa aggccgtgat ctatcaatat atggacgacc tgtataaggc cgccgcgcag 1200

atggcagtct ttatccacaa ctttaaaaac gcagctactt atcagatcta ccaggaacca 1260  
ttcaaaccgt acaatgagtg gaccttgaa ctaaaggcca aaattcagaa cttcagggt 1320  
tattatagaa aagcattcc agtgaggccc caggtgcctc tgggtgccgc agcaatatgg 1380  
ggatgttctg gaaaactgat caaggtgatg attgtatggc aagtggacag aaatgcagct 1440  
aaggcagcct gttggtggc aggtataaaa gcaaagttcg tggcagcatg gacgcttaaa 1500  
gcagccgcaa aactcactcc tctctgcgtg acacttaatg cagccatggc ctctgatttc 1560  
aaccttcccc ctgtaaaatc cctgcttaat gcgacagata tcgcagtcaa cgtaacagta 1620  
tattatggcg tgccagtctg gaaaaaaagcc gccgcggcca taattcggat actgcagcag 1680  
ctgaaaagag ctatggcgag tgacttcaac ctgaatgcgg ccgcctaccc cttggcatcg 1740  
ttaaggtcac tattttga 1758

<210> 233

<211> 255

<212> PRT

<213> Hepatitis C virus

<400> 233

Met Gly Met Gln Val Gln Ile Gln Ser Leu Phe Leu Leu Leu Trp  
1 5 10 15

Val Pro Gly Ser Arg Gly Leu Leu Phe Asn Ile Leu Gly Gly Trp Val  
20 25 30

Asp Leu Met Gly Tyr Ile Pro Leu Val Tyr Leu Val Ala Tyr Gln Ala  
35 40 45

Thr Val Ile Leu Ala Gly Tyr Gly Ala Gly Val Arg Leu Ile Val Phe  
50 55 60

Pro Asp Leu Gly Val His Met Trp Asn Phe Ile Ser Gly Ile Tyr Leu  
65 70 75 80

Leu Pro Arg Arg Gly Pro Arg Leu Tyr Leu Val Thr Arg His Ala Asp  
85 90 95

Val Val Leu Val Gly Gly Val Leu Ala Ala Leu Leu Phe Leu Leu Leu  
100 105 110

Ala Asp Ala Phe Leu Leu Ala Asp Ala Arg Val Trp Met Asn Arg  
115 120 125

Leu Ile Ala Phe Ala Cys Thr Cys Gly Ser Ser Asp Leu Tyr Leu Ser  
130 135 140

Ala Phe Ser Leu His Ser Tyr Gly Val Ala Gly Ala Leu Val Ala Phe  
145 150 155 160

Lys Leu Pro Gly Cys Ser Phe Ser Ile Phe Lys Thr Ser Glu Arg Ser  
165 170 175

Gln Pro Arg Leu Ile Phe Cys His Ser Lys Lys Lys Phe Trp Ala Lys  
180 185 190

His Met Trp Asn Phe Ile Pro Phe Tyr Gly Lys Ala Ile Arg Met Tyr  
195 200 205

Val Gly Gly Val Glu His Arg Gln Leu Phe Thr Phe Ser Pro Arg Arg  
210 215 220

Arg Leu Gly Val Arg Ala Thr Arg Lys Val Gly Ile Tyr Leu Leu Pro  
225 230 235 240

Asn Arg Ala Lys Phe Val Ala Ala Trp Thr Leu Lys Ala Ala Ala  
245 250 255

<210> 234  
<211> 747  
<212> DNA  
<213> Hepatitis C virus

<400> 234  
gaattcgccg ccaccatgca ggtgcagatc cagagcctgt ttctgctcct cctgtgggtg 60  
cccgatcca gaggactgct gttcaacatc ctgggggggt gggtgatct gatggggta 120  
atccccctgg tgtacctggt ggcctaccag gccaccgtga tcctggccgg gtacggggcc 180  
ggggtgaggc tgatcgtttt ccccgatctg ggggtgcaca tgtgaaactt catcagcggg 240  
atctacctgc tgcccaggag aggacctaga ctgtacctgg tgactagaca cgctgatgt 300  
gtgctgggtgg gaggagtgtt ggctgctctg ctgtttctgc tgctggctga tgctttcctg 360  
ctgctggctg atgctagagt gtggatgaac agactgatcg ctttcgcttg tacatgtgga 420  
agctccgatc tgtatctgag cgctttcagc ctgcacagct acggagtggc tggagctctg 480  
gtggctttta agctgcctgg atgttagctt agcatcttta agaccagcga aagaagccag 540  
cctagactga tctttgtca cagcaagaag aagttttggg ctaaggacat gtggaatttt 600  
atccctttct atggaaaggc tatcagaatg tatgtggag gagtggaaaca cagacagctg 660  
tttacattta gccctagaag gagactggga gtgagagcta caagaaaggt gggaatctat 720  
ctgctgccta atagatgaaa gcttggg 747

<210> 235  
<211> 281  
<212> PRT  
<213> Hepatitis C virus

<400> 235

Met Gly Met Gln Val Gln Ile Gln Ser Leu Phe Leu Leu Leu Trp  
1 5 10 15

Val Pro Gly Ser Arg Gly Asp Leu Met Gly Tyr Ile Pro Leu Val Ala  
20 25 30

Lys Phe Val Ala Ala Trp Thr Leu Lys Ala Ala Ala Leu Leu Phe Leu  
35 40 45

Leu Leu Ala Asp Ala Leu Ile Phe Cys His Ser Lys Lys Lys Gln Leu  
50 55 60

Phe Thr Phe Ser Pro Arg Arg Tyr Leu Val Thr Arg His Ala Asp Val  
65 70 75 80

Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu Cys Thr Cys Gly Ser Ser  
85 90 95

Asp Leu Tyr His Met Trp Asn Phe Ile Ser Gly Ile Phe Trp Ala Lys  
100 105 110

His Met Trp Asn Phe Ala Lys Phe Val Ala Ala Trp Thr Leu Lys Ala  
115 120 125

Ala Ala Ile Leu Ala Gly Tyr Gly Ala Gly Val Tyr Leu Val Ala Tyr  
130 135 140

Gln Ala Thr Val Gly Val Ala Gly Ala Leu Val Ala Phe Lys Ile Pro  
145 150 155 160

Phe Tyr Gly Lys Ala Ile Arg Met Tyr Val Gly Gly Val Glu His Arg  
165 170 175

Val Leu Val Gly Gly Val Leu Ala Ala Phe Leu Leu Leu Ala Asp Ala  
180 185 190

Arg Val Leu Pro Gly Cys Ser Phe Ser Ile Phe Ala Lys Phe Val Ala  
195 200 205

Ala Trp Thr Leu Lys Ala Ala Ala Lys Thr Ser Glu Arg Ser Gln Pro  
210 215 220

Arg Arg Leu Gly Val Arg Ala Thr Arg Lys Arg Leu Ile Val Phe Pro  
225 230 235 240

Asp Leu Gly Val Trp Met Asn Arg Leu Ile Ala Phe Ala Leu Ser Ala  
245 250 255

Phe Ser Leu His Ser Tyr Leu Leu Phe Asn Ile Leu Gly Gly Trp Val  
260 265 270

Val Gly Ile Tyr Leu Leu Pro Asn Arg  
275 280

<210> 236  
<211> 789  
<212> DNA  
<213> Hepatitis C virus

<400> 236  
gaattcgccg ccaccatggg aatgcaggtg cagatccaga gcctgttct gtccttcctg 60  
tgggtgcccgg gatccagagg agatctgatg ggatatatcc ctctggtggc taagtttg 120  
gctgcttggc cactgaaggc tgctgctctg ctgtttctgc tgctggctga tgctctgatc 180  
ttctgtcaca gcaagaagaa gcagctgtt acatttagcc caagaagata tctggtgaca 240  
agacacgctg atgtgtatct gctgcctaga cgcggaccta gactgtgtac atgtgaaagc 300  
tccgatctgt atcacatgtg gaactttatc agcggaatct tttgggctaa gcacatgtgg 360  
aatttcatcc tggctggata tggagctggc gtgtatctgg tggcttatca ggctacagt 420  
ggagtgccgtg gagctctggc ggcttcaag atccattct atggaaaggc tattcagaatg 480  
tatgtggag gagtggaca cagagtgtg gtggggaggag tgctggctgc tttccctgctg 540  
ctggctgatg ctagagtgt gcccaggatgt agctttagca tcttcaagac ttccgaacgc 600  
tcccagccta gaagactggc agtgagagct acaaggaaga gactgatcgt gtttccagat 660  
ctgggaggtgt ggtatgaatag actgatcgt ttcgctctga gcgcttcag cctgcacagc 720  
tatctgctgt tcaacatcct gggaggatgg gtgggtggaa tctatctgt gccaacacaga 780  
tgaaagctt 789

<210> 237  
<211> 107  
<212> PRT  
<213> Hepatitis C virus

<400> 237

Met Gly Met Gln Val Gln Ile Gln Ser Leu Phe Leu Leu Leu Leu Trp  
1 5 10 15

Val Pro Gly Ser Arg Gly Tyr Leu Val Ala Tyr Gln Ala Thr Val Ala  
20 25 30

Lys Phe Val Ala Ala Trp Thr Leu Lys Ala Ala Ala Leu Leu Phe Leu  
35 40 45

Leu Leu Ala Asp Ala Leu Ile Phe Cys His Ser Lys Lys Lys Tyr Leu  
50 55 60

Val Thr Arg His Ala Asp Val Leu Gly Phe Gly Ala Tyr Met Ser Lys  
65 70 75 80

Cys Thr Cys Gly Ser Ser Asp Leu Tyr His Met Trp Asn Phe Ile Ser  
85 90 95

Gly Ile Phe Trp Ala Lys His Met Trp Asn Phe  
100 105

<210> 238

<211> 345

<212> DNA

<213> Hepatitis C virus

<400> 238

gaattcgccg ccaccatggg aatgcaggtg cagatccaaa gcctgtttct gtccttcctg 60

tgggtgcccgtatccagagg atacctcgatgcctaccagg ccactgtggc taaattcgtg 120

gcagcctgga cactgaaagc tgcagctctg ctcttcctgc tcctggccga tgcactcatc 180

ttctgccatt ccaagaaaaaa gatatctggtc accagacatg ctgacgtgct ggggtttggc 240

gcctacatga gcaagtgcac ctgtggcagc tccgacctgt atcacatgtg gaactttatt 300

tctggaatct tttggccaa gcacatgtgg aatttctgaa agctt 345

<210> 239

<211> 106

<212> PRT

<213> Hepatitis C virus

<400> 239

Met Gly Met Gln Val Gln Ile Gln Ser Leu Phe Leu Leu Leu Trp  
1 5 10 15

Val Pro Gly Ser Arg Gly Val Leu Val Gly Gly Val Leu Ala Ala Ala  
20 25 30

Lys Phe Val Ala Ala Trp Thr Leu Lys Ala Ala Ala Phe Leu Leu Leu  
35 40 45

Ala Asp Ala Arg Val Leu Ser Ala Phe Ser Leu His Ser Tyr Ile Leu  
50 55 60

Ala Gly Tyr Gly Ala Gly Val Trp Met Asn Arg Leu Ile Ala Phe Ala  
65 70 75 80

Ile Pro Phe Tyr Gly Lys Ala Ile Val Ala Gly Ala Leu Val Ala Phe  
85 90 95

Lys Val Gly Ile Tyr Leu Leu Pro Asn Arg  
100 105

<210> 240

<211> 342

<212> DNA

<213> Hepatitis C virus

<400> 240

gaattcgccg ccaccatggg aatgcaggtg cagatccaaa gcctgttct gtcctccctg 60  
tgggtgccc gatccagagg agtcctggtg ggcggcgtcc tggccgctgc taagttgtc 120  
gctgcttgg a cactgaaggc agccgcttcc ctgctcctgg cagacgccag ggtgctgtct 180  
gccttcagcc tccactcccta catcctcgca gggtatggcg caggcgtgtg gatgaatcgg 240  
ctgatcgccct ttgccattcc attctatggg aaagccattg tggctggcgc cctggtggca 300  
ttcaagggtcg g gatctacct cctgccta ac cgctgaaagc tt 342

<210> 241

<211> 80

<212> PRT

<213> Hepatitis C virus

<400> 241

Met Gly Met Gln Val Gln Ile Gln Ser Leu Phe Leu Leu Leu Trp  
1 5 10 15

Val Pro Gly Ser Arg Gly Val Leu Val Gly Gly Val Leu Ala Ala Ala  
20 25 30

Lys Phe Val Ala Ala Trp Thr Leu Lys Ala Ala Ala Phe Leu Leu Leu  
35 40 45

Ala Asp Ala Arg Val Leu Ser Ala Phe Ser Leu His Ser Tyr Ile Leu  
50 55 60

Ala Gly Tyr Gly Ala Gly Val Trp Met Asn Arg Leu Ile Ala Phe Ala  
65 70 75 80

<210> 242  
<211> 264  
<212> DNA  
<213> Hepatitis C virus

<400> 242  
gaattcggccg ccaccatggg aatgcaggtg cagatccaaa gcctgtttct gtcctccctg 60  
tgggtgcccc gatccagagg agtcctggtg ggcggcgtcc tggccgctgc taagtttgc 120  
gctgcttggc cactgaaggc agccgcttgc ctgctcctgg cagacgccag ggtgctgtct 180  
gccttcagcc tccactccta catcctcgca gggtatggcg caggcgtgtg gatgaatcgg 240  
ctgatcgcccttgcctgagg atcc 264

<210> 243  
<211> 130  
<212> PRT  
<213> Hepatitis C virus

<400> 243

Met Gly Met Gln Val Gln Ile Gln Ser Leu Phe Leu Leu Leu Trp  
1 5 10 15

Val Pro Gly Ser Arg Gly Asp Leu Met Gly Tyr Ile Pro Leu Val Ala  
20 25 30

Lys Phe Val Ala Ala Trp Thr Leu Lys Ala Ala Ala Arg Leu Gly Val  
35 40 45

Arg Ala Thr Arg Lys Leu Leu Phe Asn Ile Leu Gly Gly Trp Val Arg  
50 55 60

Met Tyr Val Gly Gly Val Glu His Arg Arg Leu Ile Val Phe Pro Asp  
65 70 75 80

Leu Gly Val Gly Val Ala Gly Ala Leu Val Ala Phe Lys Leu Pro Gly  
85 90 95

Cys Ser Phe Ser Ile Phe Lys Thr Ser Glu Arg Ser Gln Pro Arg Gln  
100 105 110

Leu Phe Thr Phe Ser Pro Arg Arg Tyr Leu Leu Pro Arg Arg Gly Pro  
115 120 125

Arg Leu  
130

<210> 244  
<211> 414

<212> DNA  
<213> Hepatitis C virus

<400> 244  
gaattcggccg ccaccatggg aatgcaggtg cagatccaaa gcctgtttct gtcctccctg 60  
tgggtgcccc gatccagagg agacctgatg ggctacatcc ctctcggtgc caagtttg 120  
gcagcttggc ccctgaaggc cgctgccaga ctgggagtgc gcgctacacg gaaactcctg 180  
tttaacatcc tgggagggtg ggtgcggatg tacgtcggag gcgtcgagca cagaaggctc 240  
attgtctttc cagatctcg cggtggcgac gcaggcgac tcgtggcctt caaactgcca 300  
gggtgcagct tcagcattt caagacctcc gaacgctccc aacccagaca gctgttcact 360  
ttctctccctc ggaggtatct gctgccaga cgccgaccctc ggctgtgaaa gctt 414

<210> 245  
<211> 98  
<212> PRT  
<213> Hepatitis C virus

<400> 245

Met Gly Met Gln Val Gln Ile Gln Ser Leu Phe Leu Leu Leu Leu Trp  
1 5 10 15

Val Pro Gly Ser Arg Gly Leu Leu Phe Asn Ile Leu Gly Gly Trp Val  
20 25 30

Lys Ala Lys Phe Val Ala Ala Trp Thr Leu Lys Ala Ala Ala Leu Ala  
35 40 45

Asp Gly Gly Cys Ser Gly Gly Ala Tyr Arg Leu Ile Val Phe Pro Asp  
50 55 60

Leu Gly Val Lys Phe Trp Ala Lys His Met Trp Asn Phe Ile Gly Val  
65 70 75 80

Ala Gly Ala Leu Val Ala Phe Lys Lys Gln Leu Phe Thr Phe Ser Pro  
85 90 95

Arg Arg

<210> 246  
<211> 318  
<212> DNA  
<213> Hepatitis C virus

<400> 246  
gaattcggccg ccaccatggg aatgcaggtg cagatccaaa gcctgtttct gtcctccctg 60

tgggtgcccg gatccagagg actgctcttc aacatcctgg gcggatgggt gaaggccaag	120
ttcgtggctg cctggaccct gaaggctgcc gctctggccg acggggatg cagcggcgga	180
gcttacaggc tcattgtctt tcccgatctc ggagtcaaat tttggcaaa gcacatgtgg	240
aatttcatcg gggggccgg agccctggtc gctttaaaaa agcagcttcc caccttctcc	300
ccaagacggt gaggtacc	318

<210> 247  
<211> 107  
<212> PRT  
<213> Hepatitis C virus  
  
<400> 247

Met Gly Met Gln Val Gln Ile Gln Ser Leu Phe Leu Leu Leu Leu Trp			
1	5	10	15

Val Pro Gly Ser Arg Gly Arg Leu Gly Val Arg Ala Thr Arg Lys Lys			
20	25	30	

Ala Lys Phe Val Ala Ala Trp Thr Leu Lys Ala Ala Ala Lys Thr Ser			
35	40	45	

Glu Arg Ser Gln Pro Arg Asn Leu Pro Gly Cys Ser Phe Ser Ile Phe			
50	55	60	

Asn Asp Leu Met Gly Tyr Ile Pro Leu Val Lys Tyr Leu Leu Pro Arg			
65	70	75	80

Arg Gly Pro Arg Leu Asn Thr Leu Cys Gly Phe Ala Asp Leu Met Gly			
85	90	95	

Tyr Arg Met Tyr Val Gly Gly Val Glu His Arg		
100	105	

<210> 248  
<211> 345  
<212> DNA  
<213> Hepatitis C virus

<400> 248  
gaattcgcccg ccaccatggg aatgcaggtg cagatccaaa gcctgtttct gtcctccctg 60  
tgggtgcccg gatccagagg aaggctgggc gtgagagcca cccggaagaa ggccaagttc 120  
gtggctgcct ggaccctgaa ggctgccgct aaaacaagcg agcgctccca gcccaggaac 180  
ctgcctggat gctctttcag catcttaat gacctcatgg ggtacattcc actgggtgaag 240  
tatctgctcc ccagacgggg ccctcgccctg aacactctct gtggatttgc tgatctgatg 300

gggtacagga tgtatgtcgg cggagtcgaa cacagatgag gtacc 345

<210> 249

<211> 308

<212> PRT

<213> Hepatitis C virus

<400> 249

Met Gly Met Gln Val Gln Ile Gln Ser Leu Phe Leu Leu Leu Trp  
1 5 10 15

Val Pro Gly Ser Arg Gly Val Leu Val Gly Gly Val Leu Ala Ala Ala  
20 25 30

Phe Leu Leu Leu Ala Asp Ala Arg Val Leu Ser Ala Phe Ser Leu His  
35 40 45

Ser Tyr Ile Leu Ala Gly Tyr Gly Ala Gly Val Trp Met Asn Arg Leu  
50 55 60

Ile Ala Phe Ala Gly Ala Ala Ala Arg Leu Gly Val Arg Ala Thr Arg  
65 70 75 80

Lys Lys Ala Ala Ala Lys Thr Ser Glu Arg Ser Gln Pro Arg Asn Leu  
85 90 95

Pro Gly Cys Ser Phe Ser Ile Phe Asn Asp Leu Met Gly Tyr Ile Pro  
100 105 110

Leu Val Lys Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu Asn Thr Leu  
115 120 125

Cys Gly Phe Ala Asp Leu Met Gly Tyr Arg Met Tyr Val Gly Gly Val  
130 135 140

Glu His Arg Lys Leu Leu Phe Asn Ile Leu Gly Gly Trp Val Lys Ala  
145 150 155 160

Ala Ala Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala Tyr Arg Leu Ile  
165 170 175

Val Phe Pro Asp Leu Gly Val Lys Phe Trp Ala Lys His Met Trp Asn  
180 185 190

Phe Ile Gly Val Ala Gly Ala Leu Val Ala Phe Lys Lys Gln Leu Phe  
195 200 205

Thr Phe Ser Pro Arg Arg Asn Gly Tyr Leu Val Ala Tyr Gln Ala Thr  
210 215 220

Val Ala Ala Ala Leu Leu Phe Leu Leu Leu Ala Asp Ala Leu Ile Phe  
225 230 235 240

Cys His Ser Lys Lys Tyr Leu Val Thr Arg His Ala Asp Val Leu  
245 250 255

Gly Phe Gly Ala Tyr Met Ser Lys Cys Thr Cys Gly Ser Ser Asp Leu  
260 265 270

Tyr His Met Trp Asn Phe Ile Ser Gly Ile Phe Trp Ala Lys His Met  
275 280 285

Trp Asn Phe Lys Ala Ala Ala Lys Phe Val Ala Ala Trp Thr Leu  
290 295 300

Lys Ala Ala Ala  
305

<210> 250  
<211> 948  
<212> DNA  
<213> Hepatitis C virus  
  
<400> 250  
gaattcgccg ccaccatggg aatgcaggtg cagatccaaa gcctgttct gtcctccctg 60  
tgggtgcccgg gtcctcaggagg agtcctgggtg ggccggcgtcc tggcagccgc tttcctgctc 120  
ctggcagacg ccaggggtgct gtctgccttc agcctccact cctacatcct cgcagggtat 180  
ggcgcaggcg tggatgaa tcggctgatc gccttgcccg gcgctgccgc aaggctgggc 240  
gtgagagcca cccggaagaa ggctgcccgt aaaacaagcg agcgctccca gcccaggaac 300  
ctgcctggat gctctttcag catcttaat gacctcatgg ggtacattcc actggtaag 360  
tatctgctcc ccagacgggg ccctcgccctg aacactctct gtggatttgc tgatctgatg 420  
gggtacagga tgtatgtcgg cggagtcgaa cacagaaaac tgctttcaa catcctgggc 480  
ggatgggtga aggctgcccgc tctggccgac gggggatgca gcggcggagc ttacaggctc 540  
attgtctttc ccgatctcgg agtcaaattt tggcggaaac acatgtggaa tttcatcggg 600  
gtggccggag ccctggtcgc ttttaaaaag cagctttca cttctcccc aagacggAAC 660  
ggatacctcg tcgcctacca ggccactgtg gctgcagctc tgctttcct gtcctggcc 720  
gatgcactca tcttctgcca ttccaagaaa aagtatctgg tcaccagaca tgctgacgtg 780  
ctggggtttg gcgcctacat gagcaagtgc acctgtggca gctccgacct gtatcacatg 840

tggaaacttta tttctggaat cttttgggcc aagcacatgt ggaattttaa ggccgcagca 900  
gctaaattcg tggcagcctg gacactgaaa gcagctgcat gaggatcc 948

<210> 251  
<211> 308  
<212> PRT  
<213> Hepatitis C virus  
  
<400> 251

Met Gly Met Gln Val Gln Ile Gln Ser Leu Phe Leu Leu Leu Leu Trp  
1 5 10 15

Val Pro Gly Ser Arg Gly Arg Leu Gly Val Arg Ala Thr Arg Lys Lys  
20 25 30

Ala Ala Ala Lys Thr Ser Glu Arg Ser Gln Pro Arg Asn Leu Pro Gly  
35 40 45

Cys Ser Phe Ser Ile Phe Asn Asp Leu Met Gly Tyr Ile Pro Leu Val  
50 55 60

Lys Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu Asn Thr Leu Cys Gly  
65 70 75 80

Phe Ala Asp Leu Met Gly Tyr Arg Met Tyr Val Gly Gly Val Glu His  
85 90 95

Arg Lys Leu Leu Phe Asn Ile Leu Gly Gly Trp Val Lys Ala Ala Ala  
100 105 110

Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala Tyr Arg Leu Ile Val Phe  
115 120 125

Pro Asp Leu Gly Val Lys Phe Trp Ala Lys His Met Trp Asn Phe Ile  
130 135 140

Gly Val Ala Gly Ala Leu Val Ala Phe Lys Lys Gln Leu Phe Thr Phe  
145 150 155 160

Ser Pro Arg Arg Asn Gly Tyr Leu Val Ala Tyr Gln Ala Thr Val Ala  
165 170 175

Ala Ala Leu Leu Phe Leu Leu Ala Asp Ala Leu Ile Phe Cys His  
180 185 190

Ser Lys Lys Lys Tyr Leu Val Thr Arg His Ala Asp Val Leu Gly Phe  
195 200 205

Gly Ala Tyr Met Ser Lys Cys Thr Cys Gly Ser Ser Asp Leu Tyr His  
210 215 220

Met Trp Asn Phe Ile Ser Gly Ile Phe Trp Ala Lys His Met Trp Asn  
225 230 235 240

Phe Lys Lys Ala Ala Ala Val Leu Val Gly Gly Val Leu Ala Ala Ala  
245 250 255

Phe Leu Leu Leu Ala Asp Ala Arg Val Leu Ser Ala Phe Ser Leu His  
260 265 270

Ser Tyr Ile Leu Ala Gly Tyr Gly Ala Gly Val Trp Met Asn Arg Leu  
275 280 285

Ile Ala Phe Ala Asn Ala Ala Ala Lys Phe Val Ala Ala Trp Thr Leu  
290 295 300

Lys Ala Ala Ala  
305

<210> 252  
<211> 948  
<212> DNA  
<213> Hepatitis C virus  
  
<400> 252  
gaattcgccg ccaccatggg aatgcaggtg cagatccaaa gcctgttct gtcctcctg 60  
tgggtgcccgg gtcctcagg aaggctgggc gtgagagccca cccggaaagaa ggctgcccgt 120  
aaaacaagcg agcgctccca gcccaggaac ctgcctggat gctctttcag catcttaat 180  
gacctcatgg ggtacattcc actggtaag tatctgctcc ccagacgggg ccctcgccctg 240  
aacactctct gtggatttgc tgatctgatg gggtacagga tgtatgtcgg cggagtcgaa 300  
cacagaaaac tgctttcaa catcctgggc ggtatgggtga aggctgcccgc tctggccgac 360  
gggggatgca gcggcggagc ttacaggctc attgtcttc ccgatctcgg agtcaaattt 420  
tgggcaaagc acatgtggaa tttcatcggtt gtggccggag ccctggtcgc ttttaaaaag 480  
cagctttca ctttctcccc aagacggAAC ggatacctcg tcgccttacca ggccactgtg 540  
gctgcagctc tgctttct gtcctggcc gatgcactca tcttctgcca ttccaagaaa 600  
aagtatctgg tcaccagaca tgctgacgtg ctggggtttgc ggcctacat gagcaagtgc 660  
acctgtggca gtcggacact gtatcacatg tggacttta tttctggat ctggggcc 720  
aagcacatgt ggaattttaa gaaagccgct gcagtcctgg tggccggcgt cctggcagcc 780  
gtttcctgc tcctggcaga cgccagggtg ctgtctgcct tcagcctcca ctcctacatc 840

ctcgcagggt atggcgcagg cgtgtggatg aatcggtctga tcgccttgc caatgctgca 900  
gctaaattcg tggcagcctg gacactgaaa gcagctgcat gaggatcc 948

<210> 253  
<211> 123  
<212> PRT  
<213> Unknown

<220>  
<223> AOSI.K

<400> 253

Met Gly Met Gln Val Gln Ile Gln Ser Leu Phe Leu Leu Leu Trp  
1 5 10 15

Val Pro Gly Ser Arg Gly His Thr Leu Trp Lys Ala Gly Ile Leu Tyr  
20 25 30

Lys Ala Lys Phe Val Ala Ala Trp Thr Leu Lys Ala Ala Ala Phe Leu  
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Lys Phe Leu Leu Ser Leu Gly Ile  
50 55 60

His Leu Tyr Met Asp Asp Val Val Leu Gly Val Gly Leu Ser Arg Tyr  
65 70 75 80

Val Ala Arg Leu Phe Leu Leu Thr Arg Ile Leu Thr Ile Ser Thr Leu  
85 90 95

Pro Glu Thr Thr Val Val Arg Arg Gln Ala Phe Thr Phe Ser Pro Thr  
100 105 110

Tyr Lys Trp Leu Ser Leu Leu Val Pro Phe Val  
115 120

<210> 254  
<211> 372  
<212> DNA  
<213> Unknown

<220>  
<223> AOSI.K

<400> 254

atgggaatgc aggtgcagat ccagagcctg tttctgtctcc tcctgtgggt gccccgggtcc 60  
agaggacaca ccctgtggaa ggccggaaatc ctgtataagg ccaagttcgt ggctgcctgg 120  
accctgaagg ctgccccctt cctgccttagc gatttctttc ctagcgtgaa gttccctgctg 180

tccctggaa tccacctgta tatggatgac gtggtgctgg gagtggact gtccaggtac 240  
gtggctaggc tgccctgct gaccagaatc ctgaccatct ccaccctgcc agagaccacc 300  
gtggtgagga ggcaggcctt caccttagc cctacctata agtggctgag cctgctgg 360  
ccctttgtgt ga 372

<210> 255  
<211> 206  
<212> PRT  
<213> Hepatitis B virus

<400> 255

Met Gly Met Gln Val Gln Ile Gln Ser Leu Phe Leu Leu Leu Leu Trp  
1 5 10 15

Val Pro Gly Ser Arg Gly His Thr Leu Trp Lys Ala Gly Ile Leu Tyr  
20 25 30

Lys Ala Lys Phe Val Ala Ala Trp Thr Leu Lys Ala Ala Ala Phe Leu  
35 40 45

Pro Ser Asp Phe Pro Ser Val Phe Leu Leu Ser Leu Gly Ile His  
50 55 60

Leu Tyr Met Asp Asp Val Val Leu Gly Val Gly Leu Ser Arg Tyr Val  
65 70 75 80

Ala Arg Leu Phe Leu Leu Thr Arg Ile Leu Thr Ile Ser Thr Leu Pro  
85 90 95

Glu Thr Thr Val Val Arg Arg Gln Ala Phe Thr Phe Ser Pro Thr Tyr  
100 105 110

Lys Trp Leu Ser Leu Leu Val Pro Phe Val Ile Pro Ile Pro Ser Ser  
115 120 125

Trp Ala Phe Thr Pro Ala Arg Val Thr Gly Gly Val Phe Lys Val Gly  
130 135 140

Asn Phe Thr Gly Leu Tyr Leu Pro Ser Asp Phe Phe Pro Ser Val Thr  
145 150 155 160

Leu Trp Lys Ala Gly Ile Leu Tyr Lys Asn Val Ser Ile Pro Trp Thr  
165 170 175

His Lys Leu Val Val Asp Phe Ser Gln Phe Ser Arg Ser Ala Ile Cys  
180 185 190

Ser Val Val Arg Arg Ala Leu Met Pro Leu Tyr Ala Cys Ile  
195 200 205

<210> 256  
<211> 621  
<212> DNA  
<213> Hepatitis B virus

<400> 256  
atgggaatgc aggtgcagat ccagagcctg tttctgctcc tcctgtgggt gcccgggtcc 60  
agaggacaca ccctgtggaa ggccggaatc ctgtataagg ccaagttcgt ggctgcctgg 120  
accctgaagg ctgccgcttt cctgccttagc gatttcttgc cttagcgtgtt cctgctgtcc 180  
ctgggaatcc acctgtatat ggatgacgtg gtgctggag tggactgtc caggtacgtg 240  
gctaggctgt tcctgctgac cagaatcctg accatctcca ccctgccaga gaccaccgtg 300  
gtgaggaggc aggccttcac ctttagccct acctataagt ggctgacgcct gctggtgccc 360  
tttgtgatcc ctatccctag ctccctggct ttcacccag ccaggggtgac cggaggagtg 420  
tttaaggtgg gaaacttcac cggcctgtat ctgcccagcg atttcttcc tagcgtgacc 480  
ctgtggaagg ccgggatcct gtacaagaat gtgtccatcc cttggaccca caagctggtg 540  
gtggactttt cccagttcag cagatccgct atctgctccg tggtgaggag agctctgatg 600  
ccactgtatg cctgtatctg a 621

<210> 257  
<211> 219  
<212> PRT  
<213> Hepatitis B virus

<400> 257

Met Gly Met Gln Val Gln Ile Gln Ser Leu Phe Leu Leu Leu Leu Trp  
1 5 10 15

Val Pro Gly Ser Arg Gly His Thr Leu Trp Lys Ala Gly Ile Leu Tyr  
20 25 30

Lys Ala Lys Phe Val Ala Ala Trp Thr Leu Lys Ala Ala Ala Phe Leu  
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Asn Phe Leu Leu Ser Leu Gly Ile  
50 55 60

His Leu Tyr Met Asp Asp Val Val Leu Gly Val Gly Leu Ser Arg Tyr  
65 70 75 80

Val Ala Arg Leu Phe Leu Leu Thr Arg Ile Leu Thr Ile Ser Thr Leu

85

90

95

Pro Glu Thr Thr Val Val Arg Arg Gln Ala Phe Thr Phe Ser Pro Thr  
100 105 110

Tyr Lys Gly Ala Ala Ala Trp Leu Ser Leu Leu Val Pro Phe Val Asn  
115 120 125

Ile Pro Ile Pro Ser Ser Trp Ala Phe Lys Thr Pro Ala Arg Val Thr  
130 135 140

Gly Gly Val Phe Lys Val Gly Asn Phe Thr Gly Leu Tyr Asn Leu Pro  
145 150 155 160

Ser Asp Phe Phe Pro Ser Val Lys Thr Leu Trp Lys Ala Gly Ile Leu  
165 170 175

Tyr Lys Asn Val Ser Ile Pro Trp Thr His Lys Gly Ala Ala Leu Val  
180 185 190

Val Asp Phe Ser Gln Phe Ser Arg Asn Ser Ala Ile Cys Ser Val Val  
195 200 205

Arg Arg Ala Leu Met Pro Leu Tyr Ala Cys Ile  
210 215

<210> 258

<211> 660

<212> DNA

<213> Hepatitis B virus

<400> 258

atggaaatgc aggtgcagat ccagagcctg tttctgctcc tcctgtgggt gcccgggtcc 60

agaggacaca ccctgtggaa ggccggaatc ctgtataagg ccaagttcgt ggctgcctgg 120

accctgaagg ctgccgcttt cctgccttagc gatttcttgc cttagcgtgaa cttcctgctg 180

tccctggaa tccacctgta tatggatgac gtggtgctgg gagtgggact gtccaggtac 240

gtggctaggc tggctctgct gaccagaatc ctgaccatct ccaccctgcc agagaccacc 300

gtggtgagga ggcaggcctt cacctttagc cctacctata agggagccgc tgcctggctg 360

agcctgctgg tgcctttgt gaatatccct atccctagct cctggcttt caagacccca 420

gccagggtga ccggaggagt gtttaaggtg gaaaacttca ccggcctgta taacctgccc 480

agcgatttct ttccctagcgt gaagaccctg tggaggcccg gaatcctgta caagaatgtg 540

tccatccctt ggacccacaa gggagccgct ctggtggtgg actttccca gttcagcaga 600

aattccgcta tctgctccgt ggtgaggaga gctctgatgc cactgtatgc ctgtatctga 660

<210> 259  
<211> 168  
<212> PRT  
<213> Unknown

<220>  
<223> PfCTL.1  
  
<400> 259

Met Gln Val Gln Ile Gln Ser Leu Phe Leu Leu Leu Leu Trp Val Pro  
1 5 10 15

Gly Ser Arg Gly Ile Leu Ser Val Ser Ser Phe Leu Phe Val Asn Ala  
20 25 30

Ala Ala Gln Thr Asn Phe Lys Ser Leu Leu Arg Asn Leu Pro Ser Glu  
35 40 45

Asn Glu Arg Gly Tyr Lys Ala Ala Ala Leu Leu Ala Cys Ala Gly Leu  
50 55 60

Ala Tyr Lys Lys Ala Ala Ala Lys Phe Val Ala Ala Trp Thr Leu  
65 70 75 80

Lys Ala Ala Ala Lys Ala Phe Met Lys Ala Val Cys Val Glu Val Asn  
85 90 95

Ala Ala Ala Ser Phe Leu Phe Val Glu Ala Leu Phe Asn Ala Thr Pro  
100 105 110

Tyr Ala Gly Glu Pro Ala Pro Phe Lys Ala Ala Ala Lys Tyr Lys Leu  
115 120 125

Ala Thr Ser Val Leu Lys Ala Gly Val Ser Glu Asn Ile Phe Leu Lys  
130 135 140

Asn Ala Ala Ala Tyr Phe Ile Leu Val Asn Leu Leu Ile Lys Ala Gly  
145 150 155 160

Leu Leu Gly Val Val Ser Thr Val  
165

<210> 260  
<211> 513  
<212> DNA  
<213> Unknown

<220>  
<223> PfCTL.1

<400> 260  
atgggaatgc aggtgcagat ccagagcctg tttctgctcc tcctgtgggt gcccggatcc 60  
agaggaatcc tgagcgtgtc ctctttcctg tttgtcaacg ccgctgcaca gaccaattc 120  
aagagcctcc tgaggaacct cccctccgag aacgaaagag gctacaaagc cgctgcactg 180  
ctcgccctgcg ctggactggc ctataagaaa gccgctgcag ccaagttcgt ggccgcttgg 240  
acactgaagg ccgctgcaaa agcctttatg aaggctgtct gtgtggaggt caatgccgt 300  
gcacatcttcc tgtttgtgga ggccctctt aacgctactc cttacgcagg ggaaccagcc 360  
cccttcaagg ccgctgcaaa atataagctg gcaaccagcg tgctgaaggc tggcgtgtcc 420  
gagaatattt ttctgaaaaa cgccgctgca tacttcatcc tggtaatct gctcattaaag 480  
gccggactcc tgggggtggc ctctacagtg tga 513

<210> 261  
<211> 157  
<212> PRT  
<213> Unknown

<220>  
<223> PfCTL.2

<400> 261

Met Gln Val Gln Ile Gln Ser Leu Phe Leu Leu Leu Leu Trp Val Pro  
1 5 10 15

Gly Ser Arg Gly Phe Val Glu Ala Leu Phe Gln Glu Tyr Asn Ala Ala  
20 25 30

Ala Lys Tyr Leu Val Ile Val Phe Leu Ile Asn Ala Leu Ala Cys Ala  
35 40 45

Gly Leu Ala Tyr Lys Lys Phe Tyr Phe Ile Leu Val Asn Leu Leu Lys  
50 55 60

Ala Ala Leu Phe Phe Ile Ile Phe Asn Lys Asn Ala Ala Lys Phe  
65 70 75 80

Val Ala Ala Trp Thr Leu Lys Ala Ala Lys Phe Ile Leu Val Asn  
85 90 95

Leu Leu Ile Phe His Asn Phe Gln Asp Glu Glu Asn Ile Gly Ile Tyr  
100 105 110

Lys Leu Pro Tyr Gly Arg Thr Asn Leu Lys Ala Ala Ala Val Leu Leu  
115 120 125

Gly Gly Val Gly Leu Val Leu Asn Phe Leu Ile Phe Phe Asp Leu Phe  
130 135 140

Leu Val Lys Ala Val Leu Ala Gly Leu Leu Gly Val Val  
145 150 155

<210> 262  
<211> 480  
<212> DNA  
<213> Unknown

<220>  
<223> PfCTL.2

<400> 262  
atggaaatgc aggtgcagat ccagagcctg tttctgctcc tcctgtgggt gcccggatcc 60  
agaggattcg tggaggccct gtttcaggaa tacaacgccc ctgcaaagta tctcgatcatc 120  
gtgttcctga tcaatgctct ggcatgcgcc ggcctcgctt acaaaaaagtt ttacttcatt 180  
ctggtaaacc tgctcaaggc cgctctgttc tttatcattt tcaataaaaaa cgccgcagct 240  
aagtttgtgg ccgcattggac cctgaaggcc gctgcaaaat tcatttcgtt gaatctgctc 300  
attttcaca acttccaaga cgagaaaaat atcggaaattt ataagctgcc ctacgggagg 360  
acaaacctga aagccgctgc agtcctgctc ggccggagtgg ggctggtgct caatttcctg 420  
atcttcttg atctgttcct ggtgaaggcc gtccctggccg gcctgctcgg agtcgtgtga 480

<210> 263  
<211> 169  
<212> PRT  
<213> Unknown

<220>  
<223> PfCTL.3

<400> 263

Met Gln Val Gln Ile Gln Ser Leu Phe Leu Leu Leu Leu Trp Val Pro  
1 5 10 15

Gly Ser Arg Gly Val Phe Leu Ile Phe Phe Asp Leu Phe Leu Asn Ala  
20 25 30

Ala Ala Pro Ser Asp Gly Lys Cys Asn Leu Tyr Lys Ala Ala Ala Val  
35 40 45

Thr Cys Gly Asn Gly Ile Gln Val Arg Lys Leu Phe His Ile Phe Asp  
50 55 60

Gly Asp Asn Glu Ile Lys Ala His Val Leu Ser His Asn Ser Tyr Glu  
65 70 75 80

Lys Asn Tyr Tyr Gly Lys Gln Glu Asn Trp Tyr Ser Leu Lys Lys Ile  
85 90 95

Leu Ser Val Phe Phe Leu Ala Asn Ala Ala Ala Lys Phe Ile Lys Ser  
100 105 110

Leu Phe His Ile Phe Lys Ala Ala Ala Leu Tyr Ile Ser Phe Tyr Phe  
115 120 125

Ile Lys Ala Lys Phe Val Ala Ala Trp Thr Leu Lys Ala Ala Ala Lys  
130 135 140

Ala Ala Ala Tyr Tyr Ile Pro His Gln Ser Ser Leu Lys Ala Ala Ala  
145 150 155 160

Gly Leu Ile Met Val Leu Ser Phe Leu  
165

<210> 264

<211> 516

<212> DNA

<213> Unknown

<220>

<223> PfCTL.3

<400> 264

atgggaatgc aggtgcagat ccagagcctg tttctgctcc tcctgtgggt gcccggatcc 60

agaggagtgt tcctgatctt ctttgacctg ttctgtAACG ccgtgcacc cagcgatggc 120

aagtgcatac tctacaaggc cgctgcagtg acctgtggaa acgggattca ggtcaggaaa 180

ctcttcaca tcttcgacgg cgataacgag atcaaggccc atgtgctgtc ccacaattct 240

tatgaaaaaa actactatgg aaagcaagag aattggtaca gcctgaagaa aattctgtcc 300

gtgttctttc tcgccaacgc cgctgcaaag tttatcaagt ctctgttcca tattttcaag 360

gccgctgcac tctacatcag cttctatTTT attaaagcca aatttggc cgcttggaca 420

ctgaaggccg ctgcaaaagc cgctgcatac tataccctc accagagctc cctgaaggcc 480

gctgcagggc tgatcatggt gctctttc ctgtga 516

<210> 265

<211> 456

<212> PRT

<213> Unknown

<220>

<223> PfCTL/HTL/ (N)

<400> 265

Met Gln Val Gln Ile Gln Ser Leu Phe Leu Leu Leu Trp Val Pro  
1 5 10 15

Gly Ser Arg Gly Ser Ser Val Phe Asn Val Val Asn Ser Ser Ile Gly  
20 25 30

Leu Ile Met Val Leu Ser Phe Leu Gly Pro Gly Pro Gly Leu Tyr Ile  
35 40 45

Ser Phe Tyr Phe Ile Leu Val Asn Leu Leu Ile Phe His Ile Asn Gly  
50 55 60

Lys Ile Ile Lys Asn Ser Glu Gly Pro Gly Pro Gly Pro Asp Ser Ile  
65 70 75 80

Gln Asp Ser Leu Lys Glu Ser Arg Lys Leu Ser Gly Pro Gly Pro Gly  
85 90 95

Val Leu Ala Gly Leu Leu Gly Val Val Ser Thr Val Leu Leu Gly Gly  
100 105 110

Val Gly Leu Val Leu Gly Pro Gly Pro Gly Leu Pro Ser Glu Asn Glu  
115 120 125

Arg Gly Tyr Tyr Ile Pro His Gln Ser Ser Leu Gly Pro Gly Pro Gly  
130 135 140

Gln Thr Asn Phe Lys Ser Leu Leu Arg Asn Leu Gly Val Ser Glu Asn  
145 150 155 160

Ile Phe Leu Lys Gly Pro Gly Pro Gly Phe Gln Asp Glu Glu Asn Ile  
165 170 175

Gly Ile Tyr Gly Pro Gly Pro Gly Lys Tyr Leu Val Ile Val Phe Leu  
180 185 190

Ile Phe Phe Asp Leu Phe Leu Val Gly Pro Gly Pro Gly Lys Phe Ile  
195 200 205

Lys Ser Leu Phe His Ile Phe Asp Gly Asp Asn Glu Ile Gly Pro Gly  
210 215 220 240

Pro Gly Lys Ser Lys Tyr Lys Leu Ala Thr Ser Val Leu Ala Gly Leu  
225 230 235 240

Leu Gly Pro Gly Pro Gly Leu Pro Tyr Gly Lys Thr Asn Leu Gly Pro  
245 250 255

Gly Pro Gly Arg His Asn Trp Val Asn His Ala Val Pro Leu Ala Met  
260 265 270

Lys Leu Ile Gly Pro Gly Pro Gly Met Arg Lys Leu Ala Ile Leu Ser  
275 280 285

Val Ser Ser Phe Leu Phe Val Glu Ala Leu Phe Gln Glu Tyr Gly Pro  
290 295 300

Gly Pro Gly Val Thr Cys Gly Asn Gly Ile Gln Val Arg Gly Pro Gly  
305 310 315 320

Pro Gly Met Asn Tyr Tyr Gly Lys Gln Glu Asn Trp Tyr Ser Leu Lys  
325 330 335

Lys Gly Pro Gly Pro Gly Pro Ser Asp Gly Lys Cys Asn Leu Tyr Ala  
340 345 350

Asp Ser Ala Trp Glu Asn Val Lys Asn Val Ile Gly Pro Phe Met Lys  
355 360 365

Ala Val Cys Val Glu Val Gly Pro Gly Pro Gly Lys Ile Leu Ser Val  
370 375 380

Phe Phe Leu Ala Leu Phe Phe Ile Ile Phe Asn Lys Gly Pro Gly Pro  
385 390 395 400

Gly His Val Leu Ser His Asn Ser Tyr Glu Lys Gly Pro Gly Pro Gly  
405 410 415

Lys Tyr Lys Ile Ala Gly Gly Ile Ala Gly Gly Leu Ala Leu Leu Ala  
420 425 430

Cys Ala Gly Leu Ala Tyr Lys Phe Val Val Pro Gly Ala Ala Thr Pro  
435 440 445

Tyr Ala Gly Glu Pro Ala Pro Phe  
450 455

<210> 266

<211> 1385

<212> DNA

<213> Unknown

<220>

<223> PfCTL/HTL/ (N)

<400> 266

atgggaatgc aggtgcagat ccagagcctg tttctgctcc tcctgtgggt gcccggatcc 60  
agaggaagta gtgtgttcaa tgggtgtaaac tcataatttgc gtctgatcat ggtgctgagc 120  
tttctcggtc cagggccagg attatataatt tctttctact tcatacattgt caacctgtta 180  
atattccaca ttaacggcaa aataataaaag aacagtgaag gcccctggcc tgggcctgac 240  
tcgatccagg attctctaaa agaatcgagg aagctctccg gaccaggccc tgggtgtactc 300  
gccgggttgc tgggagtagt tagcacagtg ctgttaggag gcgtcggccct cgtcttagga 360  
cctggaccag gtctgcccgc cgaaaacgaa agaggatact acataacctca ccagagcagc 420  
ctcgccccag gccccggaca aaccaatttc aaatccctct tgcgaaatct aggagtgagc 480  
gagaacatata ttcttaaagg acccggtccc ggcttcagg acgaggagaa tataggtatt 540  
tacggtccag gacctggaaa ataccttagtgc atcgtattcc taatttttt tgacctattt 600  
ctgggtggcc caggtcccgg aaagttcatt aaatcactct tccacatccc tgacggagat 660  
aacgagatag gaccgggtcc cgggaaatca aagtacaaac tagccacttc agtgctggcc 720  
ggccttctag ggccggggccc agggctcccc tatggaaaga caaatcttgg ccccggtcca 780  
ggacggcaca actgggtgaa tcatgcgggtt ccattggcca tgaaactaat cggggcccggt 840  
ccaggcatgc gcaaacttgc aattctaagc gtaagttcat ttctgttcgt agaggcactg 900  
tttcaagaat atggcccagg acctggcgtc acatgtggga atgggatcca ggtgagagga 960  
ccgggacctg gtagaacta ttacggtaaa caggaaaatt ggtactccct gaaaaaggg 1020  
ccaggccccg gcccctcaga tggtaagtgc aacctgtatg ctgactcagc atgggagaac 1080  
gtaaaaaaaaatg taataggccc attcatgaag gcagtttgc tcgaagtcgg accaggccca 1140  
ggaaaaatac tttctgtctt cttccttagt ctcttcttca tcatcttcaa caaggacca 1200  
ggcccggtc acgtgttatac ccataactct tatggaaaag ggccaggacc tgggaaatac 1260  
aaaatcgca gaggatcgc cggcgggcta gcgcgccttgc cttggcagg cttggcttac 1320  
aaattcggttgc taccaggagc tgcaacaccc tatgcaggag aacctgcccc atttgaaga 1380  
tctgc 1385

<210> 267  
<211> 419  
<212> PRT  
<213> Unknown

<220>  
<223> Pf33

<400> 267

Met Gly Met Gln Val Gln Ile Gln Ser Leu Phe Leu Leu Leu Leu Trp  
1 5 10 15

Val Pro Gly Ser Arg Gly Phe Met Lys Ala Val Cys Val Glu Val Asn  
20 25 30

Val Thr Cys Gly Asn Gly Ile Gln Val Arg Lys Gly Leu Ile Met Val  
35 40 45

Leu Ser Phe Leu Asn Ala Ala Leu Phe His Ile Phe Asp Gly Asp Asn  
50 55 60

Glu Ile Lys Ala Ala Leu Leu Ala Cys Ala Gly Leu Ala Tyr Lys Lys  
65 70 75 80

Ser Phe Leu Phe Val Glu Ala Leu Phe Asn Ala Ala Pro Ser Asp Gly  
85 90 95

Lys Cys Asn Leu Tyr Lys Ala Ala Gln Thr Asn Phe Lys Ser Leu Leu  
100 105 110

Arg Asn Leu Pro Ser Glu Asn Glu Arg Gly Tyr Lys Ala Ala Gly Val  
115 120 125

Ser Glu Asn Ile Phe Leu Lys Asn Ala Ala Tyr Phe Ile Leu Val  
130 135 140

Asn Leu Leu Ile Lys Ala Ala Ala Ile Leu Ser Val Ser Ser Phe Leu  
145 150 155 160

Phe Val Asn Thr Pro Tyr Ala Gly Glu Pro Ala Pro Phe Lys Ala Ala  
165 170 175

Ala Lys Tyr Lys Leu Ala Thr Ser Val Leu Lys Ala Ala Val Phe Leu  
180 185 190

Ile Phe Phe Asp Leu Phe Leu Asn Tyr Tyr Ile Pro His Gln Ser Ser  
195 200 205

Leu Lys Ala Ala Gly Leu Leu Gly Asn Val Ser Thr Val Gly Ala Val  
210 215 220

Leu Leu Gly Gly Val Gly Leu Val Leu Asn Leu Ala Cys Ala Gly Leu  
225 230 235 240

Ala Tyr Lys Lys Ala Lys Phe Ile Lys Ser Leu Phe His Ile Phe Lys  
245 250 255

Ala Ala Phe Tyr Phe Ile Leu Val Asn Leu Leu Lys Ala Phe Leu Ile  
260 265 270

Phe Phe Asp Leu Phe Leu Val Lys Ala Leu Phe Phe Ile Ile Phe Asn  
275 280 285

Lys Asn Tyr Tyr Gly Lys Gln Glu Asn Trp Tyr Ser Leu Lys Phe Val  
290 295 300

Glu Ala Leu Phe Gln Glu Tyr Asn Ala Ala Ala Lys Phe Val Ala Ala  
305 310 315 320

Trp Thr Leu Lys Ala Ala Ala Lys Ile Leu Ser Val Phe Phe Leu Ala  
325 330 335

Asn Ala Val Leu Ala Gly Leu Leu Gly Asn Val Asn Phe Gln Asp Glu  
340 345 350

Glu Asn Ile Gly Ile Tyr Lys Ala Ala Ala Leu Tyr Ile Ser Phe Tyr  
355 360 365

Phe Ile Lys Ala Phe Ile Leu Val Asn Leu Leu Ile Phe His Asn Ala  
370 375 380

Ala Leu Pro Tyr Gly Arg Thr Asn Leu Lys Ala Ala His Val Leu Ser  
385 390 395 400

His Asn Ser Tyr Glu Lys Asn Ala Ala Lys Tyr Leu Val Ile Val  
405 410 415

Phe Leu Ile

<210> 268  
<211> 1269  
<212> DNA  
<213> Unknown

<220>  
<223> Pf33

<400> 268  
ggcgccacca tggaaatgca ggtgcagatc cagagcctgt ttctgctcct cctgtgggtg 60  
cccgatcca gaggatttat gaaagctgtc tgtgttagagg tgaatgtaac atgcggtaac 120  
ggaattcagg tgagaaaagg actcatcatg gtactcagct ttctgaacgc agccctgttc 180  
cacatcttg acggagacaa tgaaatcaa gccgcattgc tcgcctgtgc cggactagcc 240  
tataaaaaga gttccctttt cggtgaagca ctatctaagc cagcacccag tgacggtaaa 300  
tgcaacctat ataaaggcgc tcagactaat ttcaaaagcc tgttaagaaa tctgccctca 360

gagaatgaaa	ggggttacaa	agccgcccgc	gtgtccgaga	atatttcct	gaagaacgcc	420
gctgcttatt	ttatactcgt	aatctactc	ataaaggcag	ccgcaatcct	ttcagtgtcc	480
agctttctgt	ttgttaacac	accatatgcg	ggcgagccgg	ctccttcaa	ggctgcagca	540
aaataacaagc	ttgccacatc	agtattgaaa	gcagctgtgt	tttgatatt	ctttgatctt	600
tttttaact	actacatacc	tcatcagtct	agtcttaaag	cagccgggct	actggggAAC	660
gtctctactg	tggggccgt	cttacttgg	ggagttggcc	tcgtgtgaa	cctcgctgc	720
gcaggtctgg	cctacaaaaa	agcgaaattc	atcaagtctc	tgttccacat	ttttaagcc	780
gcattctatt	tcatactagt	gaaccttctc	aaagcttcc	tgttccat	cgatctattc	840
ctcgtaaaag	cgctattctt	cattatctt	aacaaaaatt	attacggcaa	gcaagaaaaat	900
tggtaactcac	tcaagttgt	agaagctctg	ttccaggaat	acaacgccgc	tgctaaattc	960
gttgcagctt	ggaccctgaa	agcagctgca	aagatcctat	cggtcttctt	tctcgctaat	1020
gccgtattag	caggacttct	aggcaacgtg	aactttcaag	acgaagagaa	tataggcatc	1080
tacaaagccg	cagcaactgta	catttcattc	tacttcatca	aggccttcat	actggtcaac	1140
cttctgatat	ttcataatgc	agcactgcc	tatgggagaa	ccaaactgaa	agcggcccac	1200
gtgttgagcc	acaactccta	cgagaagaac	gccgcccgcg	aatatctcgt	cattgtcttc	1260
ctgatttga						1269

<210> 269

<211> 180

<212> PRT

<213> Unknown

<220>

<223> TB.1

<400> 269

Met Gln Val Gln Ile Gln Ser Leu Phe Leu Leu Leu Leu Trp Val Pro  
1 5 10 15

Gly Ser Arg Gly Arg Met Ser Arg Val Thr Thr Phe Thr Val Lys Ala  
20 25 30

Leu Val Leu Leu Met Leu Pro Val Val Asn Leu Met Ile Gly Thr Ala  
35 40 45

Ala Ala Val Val Lys Ala Leu Val Leu Leu Met Leu Pro Val Gly Ala  
50 55 60

Gly Leu Met Thr Ala Val Tyr Leu Val Gly Ala Ala Ala Met Ala Leu  
65 70 75 80

Leu Arg Leu Pro Val Lys Arg Met Phe Ala Ala Asn Leu Gly Val Asn  
85 90 95

Ser Leu Tyr Phe Gly Gly Ile Cys Val Gly Arg Leu Pro Leu Val Leu  
100 105 110

Pro Ala Val Asn Ala Ala Ala Lys Phe Val Ala Ala Trp Thr Leu  
115 120 125

Lys Ala Ala Ala Lys Ala Ala Ala Arg Leu Met Ile Gly Thr Ala Ala  
130 135 140

Ala Gly Phe Val Val Ala Leu Ile Pro Leu Val Asn Ala Met Thr Tyr  
145 150 155 160

Ala Ala Pro Leu Phe Val Gly Ala Ala Ala Ala Met Ala Leu Leu Arg  
165 170 175

Leu Pro Leu Val  
180

<210> 270

<211> 543

<212> DNA

<213> Unknown

<220>

<223> TB.1

<400> 270

atgcaggtgc agatccagag cctgtttctg ctccctcctgt gggtgcccg atccagagga 60

aggatgagca gagtgaccac attcactgtc aaggccctgg tgctcctgat gctccccgtc 120

gtgaacctga tgatcggcac cgctgcagcc gtcgtgaaag ctctcgctt gctcatgctc 180

cctgtggag cagggctgat gacagccgtg tacctggctg gcgctgcagc catggccctc 240

ctgcggctgc cagtgaagcg catgtttgct gcaaattctgg gagtcaactc cctctatttc 300

gggggcattt gcgtggaaag gctgcccctc gtgctgcctg ctgtgaatgc agccgctgcc 360

aaatttgcgc cgcgttggac tctgaaggca gccgctaagg ccgctgcaag actgatgatc 420

gggaccgcgc ctgccggctt cgtggtcgcc ctgattcccc tggtaacgc catgacatac 480

gcagctccctc tgtttgggg agccgctgca gccatggctc tcctgcggct gccactggtg 540

tga 543

<210> 271

<211> 148

<212> PRT

<213> Unknown

<220>  
<223> BCL A2 #90

<400> 271

Met Gln Val Gln Ile Gln Ser Leu Phe Leu Leu Leu Leu Trp Val Pro  
1 5 10 15

Gly Ser Arg Gly Ile Met Ile Gly His Leu Val Gly Val Asn Arg Leu  
20 25 30

Leu Gln Glu Thr Glu Leu Val Asn Ala Lys Val Ala Glu Ile Val His  
35 40 45

Phe Leu Asn Ala Lys Val Phe Gly Ser Leu Ala Phe Val Asn Ala Tyr  
50 55 60

Leu Ser Gly Ala Asn Leu Asn Val Gly Ala Ala Tyr Leu Gln Leu Val  
65 70 75 80

Phe Gly Ile Glu Val Asn Ala Ala Lys Phe Val Ala Ala Trp Thr  
85 90 95

Leu Lys Ala Ala Ala Lys Ala Ala Val Val Leu Gly Val Val Phe  
100 105 110

Gly Ile Asn Ser Met Pro Pro Gly Thr Arg Val Asn Ala Ala Ala  
115 120 125

Ala Thr Val Gly Ile Met Ile Gly Val Asn Ala Lys Leu Cys Pro Val  
130 135 140

Gln Leu Trp Val  
145

<210> 272  
<211> 447  
<212> DNA  
<213> Unknown

<220>  
<223> BCL A2 #90

<400> 272  
atgcaggtgc agatccagag cctgtttctg ctcctcctgt ggggtggccgg gtccagagga 60  
attatgatcg gccatctgggt gggcgtcaac agactgctgc aggaaaccga gctggtaat 120  
gccaagggtgg ccgaaattgt gcactttctc aacgcaaagg tgggggttc cctggcttt 180  
gtcaatgcct atctgagcgg cgctaaccctc aacgtcggag ccgcctacct ccagctggtc 240

ttcggcatcg aggtcaacgc tgctgcaaaa ttcgtggcag cttggaccct caaggctgca 300  
gcaaaggctg ccgcgcgtcggt gctcggagtg gtgttcggga tcaactctat gccacccccc 360  
gggactaggg tcaatgctgc cgccgcaaca gtgggaatca tgattgggtt gaatgccaaa 420  
ctgtgcccag tgcaactgtg ggtgtga 447

<210> 273  
<211> 144  
<212> PRT  
<213> Unknown

<220>  
<223> BCL A2 #88  
<400> 273

Met Gln Val Gln Ile Gln Ser Leu Phe Leu Leu Leu Trp Val Pro  
1 5 10 15

Gly Ser Arg Gly Val Val Leu Gly Val Val Phe Gly Ile Asn Ala Ala  
20 25 30

Ala Ala Lys Phe Val Ala Ala Trp Thr Leu Lys Ala Ala Ala Lys Val  
35 40 45

Ala Glu Ile Val His Phe Leu Asn Ala Tyr Leu Ser Gly Ala Asn Leu  
50 55 60

Asn Val Gly Ala Ala Tyr Leu Gln Leu Val Phe Gly Ile Glu Val Asn  
65 70 75 80

Ile Met Ile Gly His Leu Val Gly Val Asn Arg Leu Leu Gln Glu Thr  
85 90 95

Glu Leu Val Asn Ala Lys Val Phe Gly Ser Leu Ala Phe Val Asn Ala  
100 105 110

Lys Leu Cys Pro Val Gln Leu Trp Val Asn Ala Ala Ala Thr Val  
115 120 125

Gly Ile Met Ile Gly Val Asn Ser Met Pro Pro Pro Gly Thr Arg Val  
130 135 140

<210> 274  
<211> 435  
<212> DNA  
<213> Unknown

<220>  
<223> BCL A2 #88

<400> 274  
atgcaggtgc agatccagag cctgtttctg ctccctcctgt gggtgcccggttgcagagga 60  
gtcgtgctgg gagtcgtctt cggcattaat gccgcccgtg caaagttcgt ggctgcctgg 120  
accctgaagg ccgcagctaa agtggcagag atcgtgcact ttctgaacgc ctacctgagc 180  
ggagcaaatac tgaacgtcggt cgctgcctat ctgcagctcg tgtttggaaat tgaagtgaac 240  
atcatgattt gacatctgggt gggcgtgaac aggctgctcc aggaaactga gctggtcaac 300  
gctaaagtgt tcgggtctct cgcctttgtg aacgctaaggc tctgccccgtt ccaactctgg 360  
gtcaatgccg cagccgctac agtggggatc atgatcggcg tgaactccat gcctccacca 420  
gggaccagag tgtga 435

<210> 275  
<211> 147  
<212> PRT  
<213> Unknown

<220>  
<223> BCL A2 #63

<400> 275

Met Gln Val Gln Ile Gln Ser Leu Phe Leu Leu Leu Leu Trp Val Pro  
1 5 10 15

Gly Ser Arg Gly Lys Leu Cys Pro Val Gln Leu Trp Val Asn Ala Ala  
20 25 30

Ala Ala Thr Val Gly Ile Met Ile Gly Val Asn Ile Met Ile Gly His  
35 40 45

Leu Val Gly Val Asn Arg Leu Leu Gln Glu Thr Glu Leu Val Asn Ala  
50 55 60

Lys Val Ala Glu Ile Val His Phe Leu Asn Ala Lys Val Phe Gly Ser  
65 70 75 80

Leu Ala Phe Val Asn Ala Tyr Leu Ser Gly Ala Asn Leu Asn Val Gly  
85 90 95

Ala Ala Tyr Leu Gln Leu Val Phe Gly Ile Glu Val Asn Ala Ala Ala  
100 105 110

Lys Phe Val Ala Ala Trp Thr Leu Lys Ala Ala Ala Lys Ala Ala Ala  
115 120 125

Val Val Leu Gly Val Val Phe Gly Ile Asn Ser Met Pro Pro Pro Gly  
130 135 140

Thr Arg Val  
145

<210> 276  
<211> 450  
<212> DNA  
<213> Unknown

<220>  
<223> BCL A2 #63

<400> 276  
atgcaggtgc agatccagag cctgtttctg ctccctcctgt gggtgcccg gtccagagga 60  
aagctctgcc ccgtgcaact gtgggtcaac gccgcccgg caaccgtcgg cattatgatc 120  
ggggtaaca tcatgatcg acacctggtc ggcgtgaaca ggctgctgca ggagacagaa 180  
ctggtaatg ccaaggtggc tgaaattgtc catttcctga atgccaaagt gttcggctct 240  
ctcgctttcg tgaacgctta tctgagcgga gctaacctca acgtgggggc cgcataacctc 300  
cagctcggtct ttgggattga ggtgaatgcc gcagctaaat ttgtcgctgc ctggaccctg 360  
aaggcagcag ccaaggctgc cgcagtggc ctgggagtg 420  
cctccaccag gcactagagt gtgaggatcc 450

<210> 277  
<211> 183  
<212> PRT  
<213> Unknown

<220>  
<223> Prostate 1

<400> 277

Leu Thr Phe Phe Trp Leu Asp Arg Ser Val Lys Ala Ala Ala Val Leu  
1 5 10 15

Val His Pro Gln Trp Val Leu Thr Val Lys Ala Ala Ala Leu Leu Gln  
20 25 30

Glu Arg Gly Val Ala Tyr Ile Lys Ala Ala Leu Leu Ser Ile Ala  
35 40 45

Leu Ser Val Asn Pro Leu Val Cys Asn Gly Val Leu Gln Gly Val Lys  
50 55 60

Ala Ala Ile Met Tyr Ser Ala His Asp Thr Thr Val Lys Ala Ala Ala  
65 70 75 80

Phe Leu Thr Pro Lys Lys Leu Gln Cys Val Asn Ala Met Met Asn Asp

85

90

95

Gln Leu Met Phe Leu Asn Ala Gly Leu Pro Ser Ile Pro Val His Pro  
100 105 110

Val Lys Ala Ala Ala Leu Gly Thr Thr Cys Tyr Val Gly Ala Ala Ile  
115 120 125

Leu Leu Trp Gln Pro Ile Pro Val Asn Phe Leu Arg Pro Arg Ser Leu  
130 135 140

Gln Cys Val Lys Ala Phe Leu Thr Leu Ser Val Thr Trp Ile Gly Val  
145 150 155 160

Asn Ala Leu Leu Tyr Ser Leu Val His Asn Leu Gly Ala Ala Thr Leu  
165 170 175

Met Ser Ala Met Thr Asn Leu  
180

<210> 278  
<211> 648  
<212> DNA  
<213> Unknown

<220>  
<223> Prostate 1

<400> 278  
atgcagggtgc agatccagag cctgtttctg ctccctcctgt ggggtccccgg gtccagagga 60  
ttgacatttt tttggctgga tagatcggtt aaggctgcag ccgtgcgttgc tcatccccag 120  
tgggtcttga ccgtaaaggc tgccgcgtg ctacaagaaa gaggggtcgc atacatcaa 180  
gctgctctcc tcttgagtat tgcgctaagt gtaaaccgc tagttgtaa tggggtgtta 240  
caagggtgtga aagcggcgat tatgtacagt gcccacgaca ctaccgtaaa agcagccgct 300  
ttcctgaccc caaaaaact ccaatgcgtg aacgcaatga tgaatgatca gctgatgtt 360  
ttaaacgctg gcttaccttc tataccggtt catccagtca aggccgcggc attgggtacg 420  
acgtgttatg ttggagcagc gatacttctt tggcagccca taccagtaaa ttttttaaga 480  
cctagatcct tacaatgcgt caaagcattc cttacactct cagtaacttg gatcggagtc 540  
aatgctctgc tatatacgct cgtacacaac ttggggcgcgg ccacacttat gagtgcaatg ^600  
acgaatttag ctaagttcgt ggccgcctgg actctaaagg ccgcagca 648

<210> 279  
<211> 322  
<212> PRT

<213> Human immunodeficiency virus

<400> 279

Met Glu Lys Val Tyr Leu Ala Trp Val Pro Ala His Lys Gly Ile Gly  
1 5 10 15

Gly Gly Pro Gly Pro Gly Gln Lys Gln Ile Thr Lys Ile Gln Asn Phe  
20 25 30

Arg Val Tyr Tyr Arg Gly Pro Gly Pro Gly Trp Glu Phe Val Asn Thr  
35 40 45

Pro Pro Leu Val Lys Leu Trp Tyr Gln Gly Pro Gly Pro Gly Tyr Arg  
50 55 60

Lys Ile Leu Arg Gln Arg Lys Ile Asp Arg Leu Ile Asp Gly Pro Gly  
65 70 75 80

Pro Gly Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu  
85 90 95

Gln Gly Pro Gly Pro Gly Gly Glu Ile Tyr Lys Arg Trp Ile Ile Leu  
100 105 110

Gly Leu Asn Lys Ile Val Arg Met Tyr Gly Pro Gly Pro Gly Gln Gly  
115 120 125

Gln Met Val His Gln Ala Ile Ser Pro Arg Thr Leu Asn Gly Pro Gly  
130 135 140

Pro Gly Ile Lys Gln Phe Ile Asn Met Trp Gln Glu Val Gly Lys Ala  
145 150 155 160

Met Tyr Gly Pro Gly Pro Gly Trp Ala Gly Ile Lys Gln Glu Phe Gly  
165 170 175

Ile Pro Tyr Asn Pro Gln Gly Pro Gly Pro Gly Lys Thr Ala Val Gln  
180 185 190

Met Ala Val Phe Ile His Asn Phe Lys Arg Gly Pro Gly Pro Gly Ser  
195 200 205

Pro Ala Ile Phe Gln Ser Ser Met Thr Lys Ile Leu Glu Pro Gly Pro  
210 215 220

Gly Pro Gly Glu Val Asn Ile Val Thr Asp Ser Gln Tyr Ala Leu Gly  
225 230 235 240

Ile Ile Gly Pro Gly Pro Gly His Ser Asn Trp Arg Ala Met Ala Ser  
245 250 255

Asp Phe Asn Leu Pro Pro Gly Pro Gly Ala Glu Thr Phe Tyr  
260 265 270

Val Asp Gly Ala Ala Asn Arg Glu Thr Lys Gly Pro Gly Pro Gly Gly  
275 280 285

Ala Val Val Ile Gln Asp Asn Ser Asp Ile Lys Val Val Pro Gly Pro  
290 295 300

Gly Pro Gly Phe Arg Lys Tyr Thr Ala Phe Thr Ile Pro Ser Ile Asn  
305 310 315 320

Asn Glu

<210> 280  
<211> 969  
<212> DNA  
<213> Human immunodeficiency virus

<400> 280  
atggagaagg tgcacccggc ctgggttcca gcccacaaag gcatcgaaaa agggccccggaa 60  
cctgggcaga aacagatcac caagatccag aacttccggg tatactaccg gggacctggc  
ccaggttggg agtttgtgaa cacaccaccc ttagtaaagc tctggatcca gggcccccggc  
cccgatacc gtaaaatcct gaggcaaaa aagatagatc gcctcattga tggcccgccc  
ccaggccagc accttctgca gcttacagtg tggggattt aacagctgca gggcccgccc  
cccgccgggg aaatttataa aagggtggatc attctgggtc tgaacaagat cgtccgcatt  
tatggccctg gaccggaca ggggcagatg gtccaccaag caatcagccc tcgaaccttg  
aatggaccgg gcccaggaat caagcaattt attaacatgt ggcaagaagt tggtaaggct  
atgtacggtc ccggccctgg atgggcaggg ataaaacagg agtttggat cccttacaat  
ccccagggtc ctggccagg taaaacggca gtgcagatgg ccgtgttcat tcataatttt  
aagcggggcc ctggacctgg cagcccaatctt atatttcaaa gttcgatgac caaaatctt  
gagccggggcc cagggccggg cgaagtgaac attgtcacag attctcagta tgccctcgcc  
atcatagggc ccggaccagg gcattccaaat tggcgccca tggcgatgtca ctttacatcta  
cctcctgggc cagggccctgg cgcggaaact ttctatgtgg acggcgctgc aaacagggag  
actaagggac ccggacccgg cggcgctgtca gtcattcagg acaactcaga catcaaggtg  
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<210> 281  
<211> 340  
<212> PRT  
<213> Human immunodeficiency virus  
<400> 281

Met Glu Lys Val Tyr Leu Ala Trp Val Pro Ala His Lys Gly Ile Gly  
1 5 10 15

Gly Gly Pro Gly Pro Gly Gln Lys Gln Ile Thr Lys Ile Gln Asn Phe  
20 25 30

Arg Val Tyr Tyr Arg Gly Pro Gly Pro Gly Trp Glu Phe Val Asn Thr  
35 40 45

Pro Pro Leu Val Lys Leu Trp Tyr Gln Gly Pro Gly Pro Gly Tyr Arg  
50 55 60

Lys Ile Leu Arg Gln Arg Lys Ile Asp Arg Leu Ile Asp Gly Pro Gly  
65 70 75 80

Pro Gly Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu  
85 90 95

Gln Gly Pro Gly Pro Gly Glu Ile Tyr Lys Arg Trp Ile Ile Leu  
100 105 110

Gly Leu Asn Lys Ile Val Arg Met Tyr Gly Pro Gly Pro Gly Gln Gly  
115 120 125

Gln Met Val His Gln Ala Ile Ser Pro Arg Thr Leu Asn Gly Pro Gly  
130 135 140

Pro Gly Ile Lys Gln Phe Ile Asn Met Trp Gln Glu Val Gly Lys Ala  
145 150 155 160

Met Tyr Gly Pro Gly Pro Gly Trp Ala Gly Ile Lys Gln Glu Phe Gly  
165 170 175

Ile Pro Tyr Asn Pro Gln Gly Pro Gly Pro Gly Lys Thr Ala Val Gln  
180 185 190

Met Ala Val Phe Ile His Asn Phe Lys Arg Gly Pro Gly Pro Gly Ser  
195 200 205

Pro Ala Ile Phe Gln Ser Ser Met Thr Lys Ile Leu Glu Pro Gly Pro  
210 215 220

Gly Pro Gly Glu Val Asn Ile Val Thr Asp Ser Gln Tyr Ala Leu Gly  
225 230 235 240

Ile Ile Gly Pro Gly Pro Gly His Ser Asn Trp Arg Ala Met Ala Ser  
245 250 255

Asp Phe Asn Leu Pro Pro Gly Pro Gly Pro Gly Ala Glu Thr Phe Tyr  
260 265 270

Val Asp Gly Ala Ala Asn Arg Glu Thr Lys Gly Pro Gly Pro Gly Gly  
275 280 285

Ala Val Val Ile Gln Asp Asn Ser Asp Ile Lys Val Val Pro Gly Pro  
290 295 300

Gly Pro Gly Phe Arg Lys Tyr Thr Ala Phe Thr Ile Pro Ser Ile Asn  
305 310 315 320

Asn Glu Gly Pro Gly Pro Gly Ala Lys Phe Val Ala Ala Trp Thr Leu  
325 330 335

Lys Ala Ala Ala  
340

<210> 282  
<211> 1023  
<212> DNA  
<213> Human immunodeficiency virus

<400> 282	
atggagaagg tgtacctggc ctgggttcca gcccacaaag gcacgggggg agggccccgg	60
cctgggcaga aacagatcac caagatccag aacttccggg tatactaccg gggaccttgt	120
ccaggttggg agtttgtgaa cacaccaccc ttagtaaagc tctggtagcca gggccccgg	180
cccgatacc gtaaaatcct gaggcaaaga aagatagatc gcctcattga tggcccgggc	240
ccaggccagc accttctgca gcttacagtg tggggatta aacagctgca gggccgggc	300
cccggggggg aaatttataa aaggtggatc attctgggtc tgaacaagat cgtccgcatt	360
tatggccctg gaccggaca gggcagatg gtccaccaag caatcagccc tcgaaccttg	420
aatggaccgg gcccaggaat caagcaattc attaacatgt ggcaagaagt tggtaaggct	480
atgtacggtc ccggccctgg atggcaggg ataaaacagg agtttggat cccttacaat	540
ccccagggtc ctggccagg taaaacggca gtgcagatgg ccgtgttcat tcataattt	600

aagcggggcc	ctggacctgg	cagcccagct	atatttcaaa	gttcgatgac	caaaatctg	660
gagcccgccc	cagggccggg	cgaagtgaac	attgtcacag	attctcagta	tgcctcgcc	720
atcatagggc	ccggaccagg	gcattccaat	tggcgccca	tggcgtctga	ctttaatcta	780
cctcctgggc	cagggcctgg	cgcggaaact	ttctatgtgg	acggcgctgc	aaacagggag	840
actaagggac	ccggaccagg	cggcgctgta	gtcattcagg	acaactcaga	catcaaggtg	900
gttcccggtc	cagggcccg	gttcagaaag	tataccgcct	tcactattcc	gtccatcaac	960
aatgagggcc	ccggcccaagg	tgccaagttc	gtggctgcct	ggaccctgaa	ggctgccgct	1020
tga						1023

<210> 283

<211> 75

<212> PRT

<213> Human immunodeficiency virus

<400> 283

Glu	Lys	Val	Tyr	Leu	Ala	Trp	Val	Pro	Ala	His	Lys	Gly	Ile	Gly	Gly
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Pro	Gly	Pro	Gly	Gln	Gly	Gln	Met	Val	His	Gln	Ala	Ile	Ser	Pro	Arg
20					25				30						

Thr	Leu	Asn	Gly	Pro	Gly	Pro	Gly	Ser	Pro	Ala	Ile	Phe	Gln	Ser	Ser
35					40				45						

Met	Thr	Lys	Ile	Leu	Glu	Pro	Gly	Pro	Gly	Pro	Gly	Phe	Arg	Lys	Tyr
50				55				60							

Thr	Ala	Phe	Thr	Ile	Pro	Ser	Ile	Asn	Asn	Glu					
65				70			75								

<210> 284

<211> 228

<212> DNA

<213> Human immunodeficiency virus

<400> 284

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cagggacaga	tggtgaccca	ggccatcagc	cctaggaccc	tgaacggacc	tggacctgga	120
agccctgcca	tcttccagag	cagcatgacc	aagatcctgg	agccggacc	tggacctgga	180
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<210> 285

<211> 276

<212> PRT

<213> Unknown

<220>

<223> PfHTL

<400> 285

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1 5 10 15

Gly Ser Arg Gly Arg His Asn Trp Val Asn His Ala Val Pro Leu Ala  
20 25 30

Met Lys Leu Ile Gly Pro Gly Pro Gly Lys Cys Asn Leu Tyr Ala Asp  
35 40 45

Ser Ala Trp Glu Asn Val Lys Asn Gly Pro Gly Pro Gly Lys Ser Lys  
50 55 60

Tyr Lys Leu Ala Thr Ser Val Leu Ala Gly Leu Leu Gly Pro Gly Pro  
65 70 75 80

Gly Gln Thr Asn Phe Lys Ser Leu Leu Arg Asn Leu Gly Val Ser Glu  
85 90 95

Gly Pro Gly Pro Gly Ser Ser Val Phe Asn Val Val Asn Ser Ser Ile  
100 105 110

Gly Leu Ile Met Gly Pro Gly Pro Gly Val Lys Asn Val Ile Gly Pro  
115 120 125

Phe Met Lys Ala Val Cys Val Glu Gly Pro Gly Pro Gly Met Asn Tyr  
130 135 140

Tyr Gly Lys Gln Glu Asn Trp Tyr Ser Leu Lys Lys Gly Pro Gly Pro  
145 150 155 160

Gly Gly Leu Ala Tyr Lys Phe Val Val Pro Gly Ala Ala Thr Pro Tyr  
165 170 175

Gly Pro Gly Pro Gly Pro Asp Ser Ile Gln Asp Ser Leu Lys Glu Ser  
180 185 190

Arg Lys Leu Asn Gly Pro Gly Pro Gly Leu Leu Ile Phe His Ile Asn  
195 200 205

Gly Lys Ile Ile Lys Asn Ser Glu Gly Pro Gly Pro Gly Ala Gly Leu  
210 215 220

Leu Gly Asn Val Ser Thr Val Leu Leu Gly Gly Val Gly Pro Gly Pro  
225 230 235 240

Gly Lys Tyr Lys Ile Ala Gly Gly Ile Ala Gly Gly Leu Ala Leu Leu  
245 250 255

Gly Pro Gly Pro Gly Met Arg Lys Leu Ala Ile Leu Ser Val Ser Ser  
260 265 270

Phe Leu Phe Val  
275

<210> 286  
<211> 837  
<212> DNA  
<213> Unknown

<220>  
<223> PfHTL

<400> 286  
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agaggaaggc acaactgggt gaatcatgct gtgcccctgg ctatgaagct gatcggccct 120  
ggaccaggga aatgcaacct ctacgcagac agcgcctggg agaacgtcaa gaatggccccc 180  
ggacctggga aatccaagta taagctcgct acctctgtgc tggcaggcct gctcggacca 240  
ggccccggac agacaaattt caaaagcctg ctcagaaacc tgggagtgct cgaggggcct 300  
ggcccaggat ctagcgtctt taatgtggtc aactcctcta ttgggctcat catgggaccc 360  
ggacctgggg tgaaaaatgt cattggccca ttcatgaagg ccgtgtgtgt cgaaggaccc 420  
gggcctggca tgaactacta tggaaagcaa gaaaattggt acagcctgaa gaaaggccct 480  
gggcctggcg gactggctta caagttgtg gtcccagggg cagccactcc ctatgggcct 540  
gggcctggcc ccgattccat ccaggactct ctcaaagaga gccggaaact gaacggaccc 600  
gggcctggac tgctcatttt ccacatcaat ggcaaaatta tcaagaacag cgagggaccc 660  
gggcctggcg ccggactgct ggggaacgtg tccaccgtcc tgctcggcgg agtggggccc 720  
gggcctggga agtacaagat cgctggaggg atcgcaggcg gactggccct cctggggcca 780  
ggaccaggga tgcgcaaact ggctattctc tctgtctcca gctttctgtt tgtgtga 837

<210> 287  
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<212> PRT  
<213> Human immunodeficiency virus

<400> 287

Val Leu Ala Glu Ala Met Ser Gln Val

1 5

<210> 288  
<211> 9  
<212> PRT  
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<400> 288

Met Thr Asn Asn Pro Pro Ile Pro Val  
1 5

<210> 289  
<211> 10  
<212> PRT  
<213> Human immunodeficiency virus

<400> 289

Met Ala Ser Asp Phe Asn Leu Pro Pro Val  
1 5 10

<210> 290  
<211> 9  
<212> PRT  
<213> Human immunodeficiency virus

<400> 290

Lys Leu Val Gly Lys Leu Asn Trp Ala  
1 5

<210> 291  
<211> 9  
<212> PRT  
<213> Human immunodeficiency virus

<400> 291

Leu Val Gly Pro Thr Pro Val Asn Ile  
1 5

<210> 292  
<211> 9  
<212> PRT  
<213> Human immunodeficiency virus

<400> 292

Ile Leu Lys Glu Pro Val His Gly Val  
1 5

<210> 293  
<211> 9  
<212> PRT  
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<400> 293

Lys Ala Ala Cys Trp Trp Ala Gly Ile  
1 5

<210> 294

<211> 10

<212> PRT

<213> Human immunodeficiency virus

<400> 294

Lys Met Ile Gly Gly Ile Gly Gly Phe Ile  
1 5 10

<210> 295

<211> 9

<212> PRT

<213> Human immunodeficiency virus

<400> 295

Arg Ala Met Ala Ser Asp Phe Asn Leu  
1 5

<210> 296

<211> 9

<212> PRT

<213> Human immunodeficiency virus

<400> 296

Thr Leu Asn Phe Pro Ile Ser Pro Ile  
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<210> 297

<211> 9

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<213> Human immunodeficiency virus

<400> 297

Lys Leu Thr Pro Leu Cys Val Thr Leu  
1 5

<210> 298

<211> 9

<212> PRT

<213> Human immunodeficiency virus

<400> 298

Leu Leu Gln Leu Thr Val Trp Gly Ile  
1 5

<210> 299

<211> 10  
<212> PRT  
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<400> 299

Ser Leu Leu Asn Ala Thr Asp Ile Ala Val  
1 5 10

<210> 300  
<211> 9  
<212> PRT  
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<400> 300

Leu Thr Phe Gly Trp Cys Phe Lys Leu  
1 5

<210> 301  
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<212> PRT  
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<400> 301

Ala Ile Ile Arg Ile Leu Gln Gln Leu  
1 5

<210> 302  
<211> 9  
<212> PRT  
<213> Human immunodeficiency virus

<400> 302

Arg Ile Leu Gln Gln Leu Leu Phe Ile  
1 5

<210> 303  
<211> 10  
<212> PRT  
<213> Human immunodeficiency virus

<400> 303

Gln Met Ala Val Phe Ile His Asn Phe Lys  
1 5 10

<210> 304  
<211> 11  
<212> PRT  
<213> Human immunodeficiency virus

<400> 304

Lys Val Tyr Leu Ala Trp Val Pro Ala His Lys

1 5 10

<210> 305  
<211> 10  
<212> PRT  
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<400> 305

Lys Ile Gln Asn Phe Arg Val Tyr Tyr Arg  
1 5 10

<210> 306  
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<212> PRT  
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<400> 306

Ala Ile Phe Gln Ser Ser Met Thr Lys  
1 5

<210> 307  
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<400> 307

Val Thr Ile Lys Ile Gly Gly Gln Leu Lys  
1 5 10

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<400> 308

Thr Thr Leu Phe Cys Ala Ser Asp Ala Lys  
1 5 10

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<400> 309

Val Thr Val Tyr Tyr Gly Val Pro Val Trp Lys  
1 5 10

<210> 310  
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<212> PRT  
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<400> 310

Gln Val Pro Leu Arg Pro Met Thr Tyr Lys  
1 5 10

<210> 311  
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<212> PRT  
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<400> 311

Val Met Ile Val Trp Gln Val Asp Arg  
1 5

<210> 312  
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<400> 312

Gln Met Val His Gln Ala Ile Ser Pro Arg  
1 5 10

<210> 313  
<211> 10  
<212> PRT  
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<400> 313

Tyr Pro Leu Ala Ser Leu Arg Ser Leu Phe  
1 5 10

<210> 314  
<211> 9  
<212> PRT  
<213> Human immunodeficiency virus

<400> 314

His Pro Val His Ala Gly Pro Ile Ala  
1 5

<210> 315  
<211> 9  
<212> PRT  
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<400> 315

Phe Pro Ile Ser Pro Ile Glu Thr Val  
1 5

<210> 316

<211> 11  
<212> PRT  
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<400> 316  
  
Ile Pro Tyr Asn Pro Gln Ser Gln Gly Val Val  
1 5 10  
  
<210> 317  
<211> 9  
<212> PRT  
<213> Human immunodeficiency virus  
  
<400> 317  
  
Ile Pro Ile His Tyr Cys Ala Pro Ala  
1 5  
  
<210> 318  
<211> 9  
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<213> Human immunodeficiency virus  
  
<400> 318  
  
Cys Pro Lys Val Ser Phe Glu Pro Ile  
1 5  
  
<210> 319  
<211> 9  
<212> PRT  
<213> Human immunodeficiency virus  
  
<400> 319  
  
Phe Pro Val Arg Pro Gln Val Pro Leu  
1 5  
  
<210> 320  
<211> 8  
<212> PRT  
<213> Human immunodeficiency virus  
  
<400> 320  
  
Val Pro Leu Gln Leu Pro Pro Leu  
1 5  
  
<210> 321  
<211> 10  
<212> PRT  
<213> Human immunodeficiency virus  
  
<400> 321  
  
Glu Val Asn Ile Val Thr Asp Ser Gln Tyr

1 5 10

<210> 322  
<211> 9  
<212> PRT  
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<400> 322

Phe Arg Asp Tyr Val Asp Arg Phe Tyr  
1 5

<210> 323  
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<212> PRT  
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<400> 323

Val Ile Tyr Gln Tyr Met Asp Asp Leu Tyr  
1 5 10

<210> 324  
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<400> 324

Val Thr Val Leu Asp Val Gly Asp Ala Tyr  
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<210> 325  
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<400> 325

Ile Tyr Gln Glu Pro Phe Lys Asn Leu  
1 5

<210> 326  
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<400> 326

Pro Tyr Asn Thr Pro Val Phe Ala Ile  
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<210> 327  
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<400> 327

Thr Tyr Gln Ile Tyr Gln Glu Pro Phe  
1 5

<210> 328  
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<400> 328

Tyr Trp Gln Ala Thr Trp Ile Pro Glu Trp  
1 5 10

<210> 329  
<211> 9  
<212> PRT  
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<400> 329

Ile Trp Gly Cys Ser Gly Lys Leu Ile  
1 5

<210> 330  
<211> 9  
<212> PRT  
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<400> 330

Arg Tyr Leu Lys Asp Gln Gln Leu Leu  
1 5

<210> 331  
<211> 10  
<212> PRT  
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<400> 331

Val Trp Lys Glu Ala Thr Thr Thr Leu Phe  
1 5 10

<210> 332  
<211> 9  
<212> PRT  
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<400> 332

Ile Tyr Glu Thr Tyr Gly Asp Thr Trp  
1 5

<210> 333

<211> 9  
<212> PRT  
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<400> 333

Pro Tyr Asn Glu Trp Thr Leu Glu Leu  
1 5

<210> 334  
<211> 15  
<212> PRT  
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<400> 334

Lys Arg Trp Ile Ile Leu Gly Leu Asn Lys Ile Val Arg Met Tyr  
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<210> 335  
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<212> PRT  
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<400> 335

Trp Glu Phe Val Asn Thr Pro Pro Leu Val Lys Leu Trp Tyr Gln  
1 5 10 15

<210> 336  
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<212> PRT  
<213> Human immunodeficiency virus

<400> 336

Gln Lys Gln Ile Thr Lys Ile Gln Asn Phe Arg Val Tyr Tyr Arg  
1 5 10 15

<210> 337  
<211> 15  
<212> PRT  
<213> Human immunodeficiency virus

<400> 337

Lys Val Tyr Leu Ala Trp Val Pro Ala His Lys Gly Ile Gly Gly  
1 5 10 15

<210> 338  
<211> 15  
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<400> 338

Gly Glu Ile Tyr Lys Arg Trp Ile Ile Leu Gly Leu Asn Lys Ile

1

5

10

15

<210> 339

<211> 15

<212> PRT

<213> Human immunodeficiency virus

<400> 339

Glu Lys Val Tyr Leu Ala Trp Val Pro Ala His Lys Gly Ile Gly  
1 5 10 15

<210> 340

<211> 15

<212> PRT

<213> Human immunodeficiency virus

<400> 340

Gln His Leu Leu Gln Leu Thr Val Trp Gly Ile Lys Gln Leu Gln  
1 5 10 15

<210> 341

<211> 15

<212> PRT

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<400> 341

Gln Gly Gln Met Val His Gln Ala Ile Ser Pro Arg Thr Leu Asn  
1 5 10 15

<210> 342

<211> 15

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<400> 342

Ser Pro Ala Ile Phe Gln Ser Ser Met Thr Lys Ile Leu Glu Pro  
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<210> 343

<211> 16

<212> PRT

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<400> 343

Ile Lys Gln Phe Ile Asn Met Trp Gln Glu Val Gly Lys Ala Met Tyr  
1 5 10 15

<210> 344

<211> 15

<212> PRT

<213> Human immunodeficiency virus

<400> 344

Phe Arg Lys Tyr Thr Ala Phe Thr Ile Pro Ser Ile Asn Asn Glu  
1 5 10 15

<210> 345

<211> 15

<212> PRT

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<400> 345

His Ser Asn Trp Arg Ala Met Ala Ser Asp Phe Asn Leu Pro Pro  
1 5 10 15

<210> 346

<211> 15

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<400> 346

Lys Thr Ala Val Gln Met Ala Val Phe Ile His Asn Phe Lys Arg  
1 5 10 15

<210> 347

<211> 15

<212> PRT

<213> Human immunodeficiency virus

<400> 347

Tyr Arg Lys Ile Leu Arg Gln Arg Lys Ile Asp Arg Leu Ile Asp  
1 5 10 15

<210> 348

<211> 15

<212> PRT

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<400> 348

Trp Ala Gly Ile Lys Gln Glu Phe Gly Ile Pro Tyr Asn Pro Gln  
1 5 10 15

<210> 349

<211> 15

<212> PRT

<213> Human immunodeficiency virus

<400> 349

Glu Val Asn Ile Val Thr Asp Ser Gln Tyr Ala Leu Gly Ile Ile  
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<210> 350

<211> 15

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<213> Human immunodeficiency virus

<400> 350

Ala Glu Thr Phe Tyr Val Asp Gly Ala Ala Asn Arg Glu Thr Lys  
1 5 10 15

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<211> 15

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<400> 351

Gly Ala Val Val Ile Gln Asp Asn Ser Asp Ile Lys Val Val Pro  
1 5 10 15

<210> 352

<211> 10

<212> PRT

<213> Hepatitis C virus

<400> 352

Leu Leu Phe Asn Ile Leu Gly Gly Trp Val  
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<210> 353

<211> 9

<212> PRT

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<400> 353

Phe Leu Leu Leu Ala Asp Ala Arg Val  
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<211> 9

<212> PRT

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<400> 354

Tyr Leu Val Ala Tyr Gln Ala Thr Val  
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<210> 355

<211> 10

<212> PRT

<213> Hepatitis C virus

<400> 355

Arg Leu Ile Val Phe Pro Asp Leu Gly Val

1 5 10

<210> 356  
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<212> PRT  
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<400> 356

Asp Leu Met Gly Tyr Ile Pro Leu Val  
1 5

<210> 357  
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<212> PRT  
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<400> 357

Trp Met Asn Arg Leu Ile Ala Phe Ala  
1 5

<210> 358  
<211> 9  
<212> PRT  
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<400> 358

Val Leu Val Gly Gly Val Leu Ala Ala  
1 5

<210> 359  
<211> 9  
<212> PRT  
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<400> 359

His Met Trp Asn Phe Ile Ser Gly Ile  
1 5

<210> 360  
<211> 9  
<212> PRT  
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<400> 360

Ile Leu Ala Gly Tyr Gly Ala Gly Val  
1 5

<210> 361  
<211> 10  
<212> PRT  
<213> Hepatitis C virus

<400> 361

Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu  
1 5 10

<210> 362  
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<400> 362

Leu Leu Phe Leu Leu Leu Ala Asp Ala  
1 5

<210> 363  
<211> 9  
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<400> 363

Tyr Leu Val Thr Arg His Ala Asp Val  
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<210> 364  
<211> 9  
<212> PRT  
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<400> 364

Lys Thr Ser Glu Arg Ser Gln Pro Arg  
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<210> 365  
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<212> PRT  
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<400> 365

Arg Leu Gly Val Arg Ala Thr Arg Lys  
1 5

<210> 366  
<211> 9  
<212> PRT  
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<400> 366

Gln Leu Phe Thr Phe Ser Pro Arg Arg  
1 5

<210> 367

<211> 10  
<212> PRT  
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<400> 367

Arg Met Tyr Val Gly Gly Val Glu His Arg  
1 5 10

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<400> 368

Leu Ile Phe Cys His Ser Lys Lys Lys  
1 5

<210> 369  
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<400> 369

Gly Val Ala Gly Ala Leu Val Ala Phe Lys  
1 5 10

<210> 370  
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<212> PRT  
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<400> 370

Val Ala Gly Ala Leu Val Ala Phe Lys  
1 5

<210> 371  
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Leu Thr Cys Gly Phe Ala Asp Leu Met Gly Tyr  
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Lys Tyr Lys Leu Ala Thr Ser Val Leu  
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Ser Phe Leu Phe Val Glu Ala Leu Phe  
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Val Leu Ala Gly Leu Leu Gly Val Val  
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Ile Met Ile Gly His Leu Val Gly Val  
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Val Val Leu Gly Val Val Phe Gly Ile  
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Ser Met Pro Pro Pro Gly Thr Arg Val  
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Phe Leu Thr Pro Lys Lys Leu Gln Cys Val  
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Val Leu Val His Pro Gln Trp Val Leu Thr Val  
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Val Pro Gly Ser Arg Gly His Thr Leu Trp Lys Ala Gly Ile Leu Tyr  
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Lys Ala Lys Phe Val Ala Ala Trp Thr Leu Lys Ala Ala Ala Phe Leu  
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Asn Phe Leu Leu Ser Leu Gly Ile  
50 55 60

His Leu Tyr Met Asp Asp Val Val Leu Gly Val Gly Leu Ser Arg Tyr  
65 70 75 80

Val Ala Arg Leu Phe Leu Leu Thr Arg Ile Leu Thr Ile Ser Thr Leu  
85 90 95

Pro Glu Thr Thr Val Val Arg Arg Gln Ala Phe Thr Phe Ser Pro Thr  
100 105 110

Tyr Lys Gly Ala Ala Ala Trp Leu Ser Leu Leu Val Pro Phe Val Asn  
115 120 125

Ile Pro Ile Pro Ser Ser Trp Ala Phe Lys Thr Pro Ala Arg Val Thr  
130 135 140

Gly Gly Val Phe Lys Val Gly Asn Phe Thr Gly Leu Tyr Asn Leu Pro  
145 150 155 160

Ser Asp Phe Phe Pro Ser Val Lys Thr Leu Trp Lys Ala Gly Ile Leu  
165 170 175

Tyr Lys Asn Val Ser Ile Pro Trp Thr His Lys Gly Ala Ala Leu Val  
180 185 190

Val Asp Phe Ser Gln Phe Ser Arg Asn Ser Ala Ile Cys Ser Val Val  
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Arg Arg Ala Leu Met Pro Leu Tyr Ala Cys Ile  
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20 25 30

Lys Ala Lys Phe Val Ala Ala Trp Thr Leu Lys Ala Ala Ala Phe Leu  
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Asn Phe Leu Leu Ser Leu Gly Ile  
50 55 60

His Leu Tyr Met Asp Asp Val Val Leu Gly Val Gly Leu Ser Arg Tyr  
65 70 75 80

Val Ala Arg Leu Phe Leu Leu Thr Arg Ile Leu Thr Ile Ser Thr Leu  
85 90 95

Pro Glu Thr Thr Val Val Arg Arg Gln Ala Phe Thr Phe Ser Pro Thr  
100 105 110

Tyr Lys Gly Ala Ala Ala Trp Leu Ser Leu Leu Val Pro Phe Val Asn  
115 120 125

Ile Pro Ile Pro Ser Ser Trp Ala Phe Lys Thr Pro Ala Arg Val Thr  
130 135 140

Gly Gly Val Phe Lys Val Gly Asn Phe Thr Gly Leu Tyr Asn Leu Pro  
145 150 155 160

Ser Asp Phe Phe Pro Ser Val Lys Thr Leu Trp Lys Ala Gly Ile Leu  
165 170 175

Tyr Lys Asn Val Ser Ile Pro Trp Thr His Lys Gly Ala Ala Leu Val  
180 185 190

Val Asp Phe Ser Gln Phe Ser Arg Asn Ser Ala Ile Cys Ser Val Val  
195 200 205

Arg Arg Lys Ala Trp Met Met Trp Tyr Trp Gly Pro Ser Leu Tyr Lys  
210 215 220

Lys Tyr Thr Ser Phe Pro Trp Leu Leu Asn Ala His Pro Ala Ala Met  
225 230 235 240

Pro His Leu Leu Lys Ala Ala Ala Asp Leu Leu Asp Thr Ala Ser Ala  
245 250 255

Leu Tyr Asn Ala Ala Ala Arg Phe Ser Trp Leu Ser Leu Leu Val Pro  
260 265 270

Phe Asn Ala Ala Ser Trp Pro Lys Phe Ala Val Pro Asn Leu Lys Leu  
275 280 285

Thr Phe Gly Arg Glu Thr Val Leu Glu Tyr Lys Ala Leu Ser Leu Asp  
290 295 300

Val Ser Ala Ala Phe Tyr Gly Ala Ala Glu Tyr Leu Val Ser Phe Gly  
305 310 315 320

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Val Pro Gly Ser Arg Gly His Thr Leu Trp Lys Ala Gly Ile Leu Tyr  
20 25 30

Lys Ala Lys Phe Val Ala Ala Trp Thr Leu Lys Ala Ala Ala Phe Leu  
35 40 45

Pro Ser Asp Phe Phe Pro Ser Val Asn Phe Leu Leu Ser Leu Gly Ile  
50 55 60

His Leu Tyr Met Asp Asp Val Val Leu Gly Val Gly Leu Ser Arg Tyr  
65 70 75 80

Val Ala Arg Leu Phe Leu Leu Thr Arg Ile Leu Thr Ile Ser Thr Leu  
85 90 95

Pro Glu Thr Thr Val Val Arg Arg Gln Ala Phe Thr Phe Ser Pro Thr  
100 105 110

Tyr Lys Gly Ala Ala Ala Trp Leu Ser Leu Leu Val Pro Phe Val Asn  
115 120 125

Ile Pro Ile Pro Ser Ser Trp Ala Phe Lys Thr Pro Ala Arg Val Thr  
130 135 140

Gly Gly Val Phe Lys Val Gly Asn Phe Thr Gly Leu Tyr Asn Leu Pro  
145 150 155 160

Ser Asp Phe Phe Pro Ser Val Lys Thr Leu Trp Lys Ala Gly Ile Leu  
165 170 175

Tyr Lys Asn Val Ser Ile Pro Trp Thr His Lys Gly Ala Ala Leu Val  
180 185 190

Val Asp Phe Ser Gln Phe Ser Arg Asn Ser Ala Ile Cys Ser Val Val  
195 200 205

Arg Arg Lys Glu Tyr Leu Val Ser Phe Gly Val Trp Gly Leu Ser Leu  
210 215 220

Asp Val Ser Ala Ala Phe Tyr Asn Ala Ala Ala Lys Tyr Thr Ser Phe  
225 230 235 240

Pro Trp Leu Leu Asn Ala His Pro Ala Ala Met Pro His Leu Leu Lys  
245 250 255

Ala Ala Ala Asp Leu Leu Asp Thr Ala Ser Ala Leu Tyr Asn Ser Trp  
260 265 270

Pro Lys Phe Ala Val Pro Asn Leu Lys Leu Thr Phe Gly Arg Glu Thr  
275 280 285

Val Leu Glu Tyr Lys Ala Ala Trp Met Met Trp Tyr Trp Gly Pro Ser  
290 295 300

Leu Tyr Lys Ala Ala Arg Phe Ser Trp Leu Ser Leu Leu Val Pro  
305 310 315 320

Phe Gly Ala Ala Ala Leu Met Pro Leu Tyr Ala Cys Ile  
325 330

<210> 467  
<211> 1002  
<212> DNA  
<213> Hepatitis B virus

<400> 467  
atgggaatgc aggtgcagat ccagagcctg tttctgctcc tcctgtgggt gcccgggtcc 60  
agaggacaca ccctgtggaa ggccggaatc ctgtataagg ccaagttcgt ggctgcctgg 120  
accctgaagg ctgccgcttt cctgccttagc gatttcttgc ctagcgtgaa cttcctgctg 180  
tccctggaa tccacctgta tatggatgac gtggtgctgg gagtgggact gtccaggtac 240  
gtggctaggc tgttcctgct gaccagaatc ctgaccatct ccaccctgcc agagaccacc 300  
gtggtgagga ggcaggccctt caccttagc cctacacctata agggagccgc tgcctggctg 360  
agcctgctgg tgccctttgt gaatatccct atccctagct cctggcttt caagacccca 420  
gccagggtga ccggaggagt gtttaaggtg gaaaacttca ccggcctgta taacctgccc 480  
agcgatttct ttccctagcgt gaagaccctg tggaggccg gaatcctgta caagaatgtg 540  
tccatccctt ggacccacaa gggagccgct ctggtggtgg actttccca gttcagcaga 600  
aattcagcaa tttgttcgggt ggtgagaaga aaggaatatc ttgtttcatt tggcgtctgg 660  
gggctgtcac tggatgtaag tgcggcattt tacaatgccg ccgcaaaata tacaagcttc 720  
ccatggctcc taaacgcaca cccagctgca atgcccgcatt tactgaaagc agccgctgac 780  
ctcttagaca ctgcctccgc tctgtacaac tcttgccca agttgccgt gcctaattc 840

aagttgacct tcggtagaga gacagtctta gaatacaaag cggcctggat gatgtggtac 900  
tggggaccct ctctgtataa agccgctgca aggttctcct ggcttagcct tctcgatcca 960  
ttcggagcag ctgcctaat gccttgtaa gcatgcataa ga 1002

<210> 468  
<211> 295  
<212> PRT  
<213> Hepatitis B virus  
  
<400> 468

Met Gly Met Gln Val Gln Ile Gln Ser Leu Phe Leu Leu Leu Leu Trp  
1 5 10 15

Val Pro Gly Ser Arg Gly Ser Trp Pro Lys Phe Ala Val Pro Asn Leu  
20 25 30

Lys Ala Ala Ala Ala Lys Phe Val Ala Ala Trp Thr Leu Lys Ala Ala  
35 40 45

Ala Lys Ser Thr Leu Pro Glu Thr Thr Val Val Arg Arg Lys His Pro  
50 55 60

Ala Ala Met Pro His Leu Leu Lys Ala Ala Ala His Thr Leu Trp Lys  
65 70 75 80

Ala Gly Ile Leu Tyr Lys Lys Ala Phe Leu Leu Thr Arg Ile Leu Thr  
85 90 95

Ile Gly Ala Leu Ser Leu Asp Val Ser Ala Ala Phe Tyr Asn Ala Ala  
100 105 110

Ala Lys Tyr Thr Ser Phe Pro Trp Leu Leu Asn Ala Ala Ala Arg Phe  
115 120 125

Ser Trp Leu Ser Leu Leu Val Pro Phe Asn Ala Ala Thr Pro Ala Arg  
130 135 140

Val Thr Gly Gly Val Phe Lys Ala Ala Glu Tyr Leu Val Ser Phe Gly  
145 150 155 160

Val Trp Gly Ala Ala Ala Tyr Met Asp Asp Val Val Leu Gly Val Asn  
165 170 175

Asp Leu Leu Asp Thr Ala Ser Ala Leu Tyr Asn Ala Ala Phe Pro  
180 185 190

His Cys Leu Ala Phe Ser Tyr Met Lys Ala Ala Ala Trp Met Met Trp  
195 200 205

Tyr Trp Gly Pro Ser Leu Tyr Lys Ala Ala Ser Ala Ile Cys Ser Val  
210 215 220

Val Arg Arg Lys Asn Phe Leu Leu Ser Leu Gly Ile His Leu Asn Ile  
225 230 235 240

Pro Ile Pro Ser Ser Trp Ala Phe Lys Ala Ala Trp Leu Ser Leu Leu  
245 250 255

Val Pro Phe Val Asn Ala Phe Leu Pro Ser Asp Phe Phe Pro Ser Val  
260 265 270

Lys Leu Thr Phe Gly Arg Glu Thr Val Leu Glu Tyr Lys Gln Ala Phe  
275 280 285

Thr Phe Ser Pro Thr Tyr Lys  
290 295

<210> 469  
<211> 888  
<212> DNA  
<213> Hepatitis B virus

<400> 469  
atggaaatgc aggtgcagat ccagagcctg tttctgctcc tcctgtgggt gcccgggtcc 60  
agaggatctt ggcctaaatt cgcagtgcca aaccttaaag ccgcggctgc taagttcgta 120  
gctgcctgga cactaaaggc cggcgctaaag agcacactgc cagagaccac cgtggtccgg 180  
cgaaagcattc cagccgcaat gccccacttg ctcaaaggcag ccgcccacac tctttgaaag 240  
gctggatat tggatcaagaa agccttcctt ctgaccagga tattaactat cggagctctg 300  
tcactcgacg tttctgctgc cttctacaac gcggcggcaa aatacactag ctttccatgg 360  
ctactcaacg cagccgccag attttcttgg ctatcaactac tggtgccatt taatgcagca 420  
acacctgcta gagtgcactgg cggcgtcttt aaagcagccg agtacttggt gagctttggc 480  
gtctgggtg cagccgcata tatggatgtat gtatgttag gggtgaacga cctcctggac 540  
acagccagtg cgctgtacaa tgcagctgca ttccccatt gccttagcatt cagttatatg 600  
aaagcagcag cctggatgtat gtggactgg ggaccgtccc tttataaagc agcttcagca 660  
atctgttccg ttgtgaggag aaaaaacttt ttactctccc tcggtattca cctgaacatt 720  
cccatccctt cctcatgggc attcaaagcc gcttggctga gtctactcgt acctttcggt 780  
aatgcatttc tgcccagcga cttttcccc tcggtaaaac tgacattcgg acgcgaaaca 840

gtccttgaat ataaggcaggc cttcacgttc tcaccaacct ataaatga 888

<210> 470  
<211> 296  
<212> PRT  
<213> Hepatitis B virus

<400> 470

Met Gly Met Gln Val Gln Ile Gln Ser Leu Phe Leu Leu Leu Trp  
1 5 10 15

Val Pro Gly Ser Arg Gly Tyr Met Asp Asp Val Val Leu Gly Val Asn  
20 25 30

Ala Ala Ala Glu Tyr Leu Val Ser Phe Gly Val Trp Asn Asp Leu Leu  
35 40 45

Asp Thr Ala Ser Ala Leu Tyr Gly Ala Ala His Thr Leu Trp Lys Ala  
50 55 60

Gly Ile Leu Tyr Lys Lys Ala Phe Leu Pro Ser Asp Phe Phe Pro Ser  
65 70 75 80

Val Lys Ala Phe Pro His Cys Leu Ala Phe Ser Tyr Met Lys Ala Ala  
85 90 95

Arg Phe Ser Trp Leu Ser Leu Leu Val Pro Phe Asn Ala Ala Ser Trp  
100 105 110

Pro Lys Phe Ala Val Pro Asn Leu Lys Ala Ala Ala Gln Ala Phe Thr  
115 120 125

Phe Ser Pro Thr Tyr Lys Asn Ala Ala Ala Ser Ala Ile Cys Ser Val  
130 135 140

Val Arg Arg Lys Ala Phe Leu Leu Thr Arg Ile Leu Thr Ile Asn Ile  
145 150 155 160

Pro Ile Pro Ser Ser Trp Ala Phe Lys Ala Ala Trp Met Met Trp Tyr  
165 170 175

Trp Gly Pro Ser Leu Tyr Lys Ala Ala Ala Thr Pro Ala Arg Val Thr  
180 185 190

Gly Gly Val Phe Lys Ala Ala Asn Phe Leu Leu Ser Leu Gly Ile His  
195 200 205

Leu Asn Leu Thr Phe Gly Arg Glu Thr Val Leu Glu Tyr Lys His Pro  
210 215 220

Ala Ala Met Pro His Leu Leu Lys Ala Ala Ser Thr Leu Pro Glu Thr  
225 230 235 240

Thr Val Val Arg Arg Lys Trp Leu Ser Leu Leu Val Pro Phe Val Asn  
245 250 255

Ala Ala Ala Ala Lys Phe Val Ala Ala Trp Thr Leu Lys Ala Ala Ala  
260 265 270

Lys Leu Ser Leu Asp Val Ser Ala Ala Phe Tyr Asn Ala Ala Ala Lys  
275 280 285

Tyr Thr Ser Phe Pro Trp Leu Leu  
290 295

<210> 471  
<211> 891  
<212> DNA  
<213> Hepatitis B virus

<400> 471  
atgggaatgc aggtgcagat ccagagcctg tttctgctcc tcctgtgggt gcccgggtcc 60  
agaggataca tggatgacgt tggatgttaggc gttaatgcag ccgcagaata tctcgtgtca 120  
ttcggcgtct ggaacgacct gttggacact gcacatctgctc tgtacgggtgc agcccatacc 180  
ctgtggaagg ccggaatcct ctacaaaaag gcattcctac cttagcgactt tttccattca 240  
gtgaaagcct tcccacattt cctagcattt tcgtatatga aagcggctag gttctcatgg 300  
cttagtcttc tagtaccttt caatgccccc tcctggccca aattcgccgt accaaatcta 360  
aaagcggccg cgcaggccctt tacattctct ccgacttata aaaatgcagc agcctccgct 420  
atttgtagcg tcgtgcgcgg aaaggcccttc ctgctaaccg ggattttgac gataaacatc 480  
cccatccctt cttagctggc tttcaaagca gcatggatga tgtggactg gggtcccagc 540  
ttatacaaag ctgcggcaac cccagcaaga gtgacagggg gcgtgtttaa ggccgccaac 600  
ttcctcctga gtctcggaat acacctgaac ttaacctttg ggagagagac agtactggag 660  
tataaacacc cagcagctat gccgcaccta ctcaaagccg cttcaacact cccagaaaca 720  
actgttagtga ggagaaaaatg gctctccctg cttgtcccat ttgtcaacgc cgccgcccgt 780  
aagtttggc cgcgttggac acttaaggct gcagcaaagt tgtcaacttga tgtagtgca 840  
gcgttctata acgcagctgc aaaatacact tcctttccct ggctgctgtg a 891

<210> 472

<211> 403

<212> PRT

<213> Hepatitis B virus

<400> 472

Met Gly Met Gln Val Gln Ile Gln Ser Leu Phe Leu Leu Leu Leu Trp  
1 5 10 15

Val Pro Gly Ser Arg Gly Phe Leu Leu Thr Arg Ile Leu Thr Ile Asn  
20 25 30

Ala Ala Ala Ser Trp Pro Lys Phe Ala Val Pro Asn Leu Lys Ala Ala  
35 40 45

Ala His Thr Leu Trp Lys Ala Gly Ile Leu Tyr Lys Lys Ala Asp Leu  
50 55 60

Leu Asp Thr Ala Ser Ala Leu Tyr Asn Gln Ala Phe Thr Phe Ser Pro  
65 70 75 80

Thr Tyr Lys Gly Ala Ala Ala Asn Val Ser Ile Pro Trp Thr His Lys  
85 90 95

Gly Ala Ala Ala Phe Leu Leu Ser Leu Gly Ile His Leu Asn Ile Pro  
100 105 110

Ile Pro Ser Ser Trp Ala Phe Lys Ala Ala Ala Leu Trp Phe His Ile  
115 120 125

Ser Cys Leu Thr Phe Lys Ala Ala Ala Ile Leu Leu Leu Cys Leu Ile  
130 135 140

Phe Leu Leu Asn Ala Ala Ala Tyr Pro Ala Leu Met Pro Leu Tyr Ala  
145 150 155 160

Cys Ile Asn Ala His Pro Ala Ala Met Pro His Leu Leu Lys Ala Ala  
165 170 175

Ala Ser Phe Cys Gly Ser Pro Tyr Lys Ala Ala Gly Leu Ser Arg Tyr  
180 185 190

Val Ala Arg Leu Asn Lys Tyr Thr Ser Phe Pro Trp Leu Leu Asn Phe  
195 200 205

Leu Pro Ser Asp Phe Phe Pro Ser Val Lys Ala Phe Pro His Cys Leu  
210 215 220

Ala Phe Ser Tyr Met Lys Ala Glu Tyr Leu Val Ser Phe Gly Val Trp  
225 230 235 240

Asn Ala Ala Leu Thr Phe Gly Arg Glu Thr Val Leu Glu Tyr Lys Ala  
245 250 255

Ala Ala Leu Pro Ser Asp Phe Pro Ser Val Lys Ala Tyr Met Asp  
260 265 270

Asp Val Val Leu Gly Val Asn Leu Val Val Asp Phe Ser Gln Phe Ser  
275 280 285

Arg Asn Ala Ala Ala Arg Trp Met Cys Leu Arg Arg Phe Ile Ile Asn  
290 295 300

Ala Ala Arg Phe Ser Trp Leu Ser Leu Leu Val Pro Phe Asn Ala Ala  
305 310 315 320

Thr Pro Ala Arg Val Thr Gly Gly Val Phe Lys Ala Ala Trp Leu Ser  
325 330 335

Leu Leu Val Pro Phe Val Asn Ser Ala Ile Cys Ser Val Val Arg Arg  
340 345 350

Lys Ala Lys Phe Val Ala Ala Trp Thr Leu Lys Ala Ala Lys Trp  
355 360 365

Met Met Trp Tyr Trp Gly Pro Ser Leu Tyr Lys Ala Ala Ser Thr Leu  
370 375 380

Pro Glu Thr Thr Val Val Arg Arg Lys Leu Ser Leu Asp Val Ser Ala  
385 390 395 400

Ala Phe Tyr

<210> 473  
<211> 1215  
<212> DNA  
<213> Hepatitis B virus

<400> 473  
atggaaatgc aggtccagat acagagcttg ttcctcctcc tgctttgggt ccccgatca 60  
aggggtttcc tcctaaccgg catcctgaca attaacgccc cagcctcctg gccaaaattt 120  
gccgtgccaa atctcaaggc agctgcacac acactatgga aagcagggat actgtacaag 180  
aaagccgatc tgctagacac agcgtctgctg 60 ttgtacaacc aggctttac tttctctcct 240

acatataaaag ggcgcagctgc aaacgtgagt atcccttggc cgcacaaaagg agccgctgcc	300
aacttcttac tgtccctggg catccatcta aatatcccta ttcccttcata ctgggcattt	360
aaagcagccg ccttatgggtt ccacataagt tgtctgaccc tcaaaaggccgc agcaatccctg	420
ctcccttgcc tcattttctt actaaacgcc gctgcctatc cagctttat gccattgtac	480
gcatgtatca acgccccaccc cgccagcaatg cccccacctcc tttaaagctgc cgccagttc	540
tgcggttctc cttataaagc agcagggctg tccagatacg tagctaggct aaacaagttat	600
accagcttcc cctggttact taatttcctg ccgtcagatt tctttccatc agttaaggcc	660
ttccctcatt gtctggcctt tagtacatg aaggctgaat atttggtatac ctgcggcgtg	720
tggaaatgcgg cactgacatt tggaaaggag acagtgcctg agtacaaaagc cgccgcacta	780
ccctcgact tcttcccattt ggtcaaaagct tacatggacg atgttagtcct cggcgtaac	840
tttagtagtgg acttttctca attttccaga aacgcagcgg ccagatggat gtgccttcgg	900
cgttttataa taaacgcccgc tcgattcagc tggctatcac tcctagttcc atttaatgca	960
gctacaccccg cacgggtgac aggtggagtt ttcaaggcag cgtggcttcc actgcttgc	1020
ccatattgtga actcagctat ttgctcagta gtgagaagga aggcaaaatt cgtcgctgcc	1080
tggactctca aagctgccgc aaagtggatg atgtggattt ggggaccgag cttgtacaaa	1140
gcggccctcta ctctgccaga aactaccgta gtgagaagaa aactgagcct ggacgtcagc	1200
qcqqcattct actqa	1215

<210> 474

<211> 403

<212> PRT

<213> Hepatitis B virus

<400> 474

Met Gly Met Gln Val Gln Ile Gln Ser Leu Phe Leu Leu Leu Leu Trp  
 1 5 10 15

Val Pro Gly Ser Arg Gly Phe Leu Leu Ser Leu Gly Ile His Leu Asn  
20 25 30

Ala Ala Ala Lys Tyr Thr Ser Phe Pro Trp Leu Leu Asn Ala Ala Ala  
35 40 45

Arg Phe Ser Trp Leu Ser Leu Leu Val Pro Phe Asn Ala Ala Phe Pro  
50 55 60

His Cys Leu Ala Phe Ser Tyr Met Lys Ala Ala Leu Val Val Asp Phe  
65 70 75 80

Ser Gln Phe Ser Arg Gly Ala Ile Leu Leu Leu Cys Leu Ile Phe Leu  
85 90 95

Leu Asn Ala Ala Ala His Thr Leu Trp Lys Ala Gly Ile Leu Tyr Lys  
100 105 110

Lys Ala Trp Met Met Trp Tyr Trp Gly Pro Ser Leu Tyr Lys Ala Tyr  
115 120 125

Pro Ala Leu Met Pro Leu Tyr Ala Cys Ile Gly Ala Ala Ala Trp Leu  
130 135 140

Ser Leu Leu Val Pro Phe Val Asn Phe Leu Leu Thr Arg Ile Leu Thr  
145 150 155 160

Ile Asn Ile Pro Ile Pro Ser Ser Trp Ala Phe Lys Ala Ala Ala Glu  
165 170 175

Tyr Leu Val Ser Phe Gly Val Trp Asn Leu Pro Ser Asp Phe Phe Pro  
180 185 190

Ser Val Lys Phe Leu Pro Ser Asp Phe Phe Pro Ser Val Lys Asp Leu  
195 200 205

Leu Asp Thr Ala Ser Ala Leu Tyr Asn Ser Trp Pro Lys Phe Ala Val  
210 215 220

Pro Asn Leu Lys Ala Ala Ala Ser Ala Ile Cys Ser Val Val Arg Arg  
225 230 235 240

Lys Leu Ser Leu Asp Val Ser Ala Ala Phe Tyr Asn Ala Ala Lys  
245 250 255

Phe Val Ala Ala Trp Thr Leu Lys Ala Ala Ala Lys Ala Ala Asn Val  
260 265 270

Ser Ile Pro Trp Thr His Lys Gly Ala Ala Gly Leu Ser Arg Tyr Val  
275 280 285

Ala Arg Leu Asn Ala Ala Ala Ser Thr Leu Pro Glu Thr Thr Val Val  
290 295 300 320

Arg Arg Lys His Pro Ala Ala Met Pro His Leu Leu Lys Ala Ala Ala  
305 310 315 320

Arg Trp Met Cys Leu Arg Arg Phe Ile Ile Asn Ala Ser Phe Cys Gly  
325 330 335

Ser Pro Tyr Lys Ala Ala Tyr Met Asp Asp Val Val Val Leu Gly Val Asn  
340 345 350

Ala Leu Trp Phe His Ile Ser Cys Leu Thr Phe Lys Ala Ala Ala Thr  
355 360 365

Pro Ala Arg Val Thr Gly Gly Val Phe Lys Ala Ala Ala Leu Thr Phe  
370 375 380

Gly Arg Glu Thr Val Leu Glu Tyr Lys Gln Ala Phe Thr Phe Ser Pro  
385 390 395 400

Thr Tyr Lys

<210> 475  
<211> 1212  
<212> DNA  
<213> Hepatitis B virus

<400> 475  
atgggaatgc aggtgcaa at acagtctctc ttccctttgc ttctctgggt tccaggatca 60  
cggggcttct tgcttagctt gggcatccac ctaaatgctg ctgcaaaata cacatcttt 120  
ccttggctcc ttaatgccgc cgctagggtt tcatggctga gtctgctagt acctttcaat 180  
gcggcttcc cacattgcct agcttttagc tatatgaaag ctgctttagt cgtggacttt 240  
tcacagtttgc aatcctgctg ctatgtctga tattccttct aaacgcagca 300  
gcccacacac tctgaaagc tggtatcctt tacaagaaag cctggatgat gtggatttgg 360  
ggaccaggcc tctacaaagc ataccctgcc ctgatgccac tatacgcatg cattggcg 420  
gcagcctggt tatccctttt agtaccgttt gtcaacttgc tattaaccag aatcctgacg 480  
attaatattc cgatccaaag ttccctggca ttcaaagcag ccgcggagta tctggtttca 540  
tttggcgtat ggaacctgccc aagcgacttc tttccctctg ttaagttcct cccctccgat 600  
ttctttccat cggtaaaaga cctccttgat accgcgagcg ctctgtacaa ctcgtggcca 660  
aaattcgcag ttccaaaccc aaaagccgcc gccagtgccaa tttgttccgt ggttaaggaga 720  
aaattatcac tcgacgtgtc cgcagcattt tataacgctg ctgcaaagtt tgtcgcagca 780  
tggacattga aggctgcagc gaaagcagca aatgtatcaa taccctggac ccacaagggt 840  
gcagccgggc tgtcttaggt tttggcgagg ctaaacgccc ccgcctcaac actgcctgag 900  
actactgtcg tgagacgcaa acaccctgcc gcaatgcccc acctgctgaa agcagccgca 960  
cgatggatgt gcctcagaag attcataata aacgcttctt tctgtgggtc accctacaaa 1020  
gccgcttaca tggacgatgt ggtcctcgga gtgaatgccc tctggttcca tatcagctgc 1080

ctgacattca aggcagccgc caccccgct cgtgtgacag gaggtgtctt caaagccgcg 1140  
gcactgactt tcggtcggga aactgtattg gaatataagc aggccttcac attctcccc 1200  
acataacaagt ga 1212

<210> 476  
<211> 410  
<212> PRT  
<213> Hepatitis B virus

<400> 476

Met Gln Val Gln Ile Gln Ser Leu Phe Leu Leu Leu Leu Trp Val Pro  
1 5 10 15

Gly Ser Arg Gly Phe Leu Leu Ser Leu Gly Ile His Leu Asn Ala Ala  
20 25 30

Ala Lys Tyr Thr Ser Phe Pro Trp Leu Leu Asn Ala Ala Ala Arg Phe  
35 40 45

Ser Trp Leu Ser Leu Leu Val Pro Phe Asn Ala Ala Phe Pro His Cys  
50 55 60

Leu Ala Phe Ser Tyr Met Lys Ala Ala Leu Val Val Asp Phe Ser Gln  
65 70 75 80

Phe Ser Arg Gly Ala Ile Leu Leu Cys Leu Ile Phe Leu Leu Asn  
85 90 95

Ala Ala Ala His Thr Leu Trp Lys Ala Gly Ile Leu Tyr Lys Lys Ala  
100 105 110

Trp Met Met Trp Tyr Trp Gly Pro Ser Leu Tyr Lys Ala Tyr Pro Ala  
115 120 125

Leu Met Pro Leu Tyr Ala Cys Ile Gly Ala Ala Ala Trp Leu Ser Leu  
130 135 140

Leu Val Pro Phe Val Asn Phe Leu Leu Thr Arg Ile Leu Thr Ile Asn  
145 150 155 160

Ala Ala Ala Ile Pro Ile Pro Ser Ser Trp Ala Phe Lys Ala Ala Ala  
165 170 175

Glu Tyr Leu Val Ser Phe Gly Val Trp Asn Leu Pro Ser Asp Phe Phe  
180 185 190

Pro Ser Val Lys Ala Ala Ala Phe Leu Pro Ser Asp Phe Phe Pro Ser  
195 200 205

Val Lys Ala Ala Ala Asp Leu Leu Asp Thr Ala Ser Ala Leu Tyr Asn  
210 215 220

Ser Trp Pro Lys Phe Ala Val Pro Asn Leu Lys Ala Ala Ala Ser Ala  
225 230 235 240

Ile Cys Ser Val Val Arg Arg Lys Leu Ser Leu Asp Val Ser Ala Ala  
245 250 255

Phe Tyr Asn Ala Ala Lys Phe Val Ala Ala Trp Thr Leu Lys Ala  
260 265 270

Ala Ala Lys Ala Ala Asn Val Ser Ile Pro Trp Thr His Lys Gly Ala  
275 280 285

Ala Gly Leu Ser Arg Tyr Val Ala Arg Leu Asn Ala Ala Ala Ser Thr  
290 295 300

Leu Pro Glu Thr Thr Val Val Arg Arg Lys His Pro Ala Ala Met Pro  
305 310 315 320

His Leu Leu Lys Ala Ala Ala Arg Trp Met Cys Leu Arg Arg Phe Ile  
325 330 335

Ile Asn Ala Ser Phe Cys Gly Ser Pro Tyr Lys Ala Ala Tyr Met Asp  
340 345 350

Asp Val Val Leu Gly Val Asn Ala Leu Trp Phe His Ile Ser Cys Leu  
355 360 365

Thr Phe Lys Ala Ala Ala Thr Pro Ala Arg Val Thr Gly Gly Val Phe  
370 375 380

Lys Ala Ala Ala Leu Thr Phe Gly Arg Glu Thr Val Leu Glu Tyr Lys  
385 390 395 400

Gln Ala Phe Thr Phe Ser Pro Thr Tyr Lys  
405 410

<210> 477

<211> 1239

<212> DNA

<213> Hepatitis B virus

<400> 477

atgggaatgc	aggtaaaat	acagtcttc	ttccctttgc	ttctctgggt	tccaggatca	60
cggggcttct	tgcttagctt	gggcattccac	ctaaatgctg	ctgaaaata	cacatcttt	120
ccttggctcc	ttaatgccgc	cgctagggtt	tcatggctga	gtctgctagt	acctttcaat	180
gcggcttcc	cacattgcct	agcttttagc	tataatgaaag	ctgcttagt	cgtggacttt	240
tcacagttt	gcagaggagc	aatcctgctg	ctatgtctga	tattccttct	aaacgcagca	300
gccccacacac	tctggaaagc	tggtatcctt	tacaagaaag	cctggatgat	gtggatttgg	360
ggacccagcc	tctacaaagc	ataccctgcc	ctgatgccac	tatacgcatt	cattggcgcg	420
gcagcctgg	tatcccttt	agtaccgtt	gtcaacttcc	tattaaccag	aatcctgacg	480
atataatgctg	ccgccattcc	gatcccaagt	tcctggcat	tcaaaggcgc	cgcggagtat	540
ctggtttcat	ttggcgtatg	gaacctgcca	agcgacttct	ttccttctgt	taaggccgct	600
gctttctcc	cctccgattt	cttccatcg	gtgaaagccg	ctgcccacct	ccttgataacc	660
gcgagcgctc	tgtacaactc	gtggccaaaa	ttcgcagttc	caaacctaaa	agccgcccgc	720
agtgcattt	gttccgtgg	aaggagaaaa	ttatcactcg	acgtgtccgc	agcattttat	780
aacgctgctg	caaagttgt	cgcagcatgg	acattgaagg	ctgcagcgaa	agcagcaaat	840
gtatcaatac	cctggaccca	caagggtgca	gccgggctgt	ctaggtatgt	ggcgaggcta	900
aacgcccgg	cctcaacact	gcctgagact	actgtcgtga	gacgcaaaca	ccctgcccga	960
atgccccacc	tgctgaaagc	agccgcacga	tggatgtgcc	tcagaagatt	cataataaac	1020
gcttctttct	gtgggtcacc	ctacaaagcc	gcttacatgg	acgatgtgg	cctcgagggt	1080
aatgcctct	gttccat	cagctgcctg	acattcaagg	cagcccccac	ccccgctcgt	1140
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<212> PRT

<213> Hepatitis B virus

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Gly	Trp	Gly	Leu	Gly	Pro	Gly	Pro	Gly	Arg	His	Tyr	Leu	His	Thr	Leu
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Trp Lys Ala Gly Ile Leu Tyr Lys Gly Pro Gly Pro Gly Pro His His  
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Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr Leu  
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Ala Gly Pro Gly Pro Gly Glu Ser Arg Leu Val Val Asp Phe Ser Gln  
85 90 95

Phe Ser Arg Gly Asn Gly Pro Gly Pro Gly Pro Phe Leu Leu Ala Gln  
100 105 110

Phe Thr Ser Ala Ile Cys Ser Val Val Gly Pro Gly Pro Gly Leu Val  
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Pro Phe Val Gln Trp Phe Val Gly Leu Ser Pro Thr Val Gly Pro Gly  
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Pro Gly Leu His Leu Tyr Ser His Pro Ile Ile Leu Gly Phe Arg Lys  
145 150 155 160

Ile Gly Pro Gly Pro Gly Ser Ser Asn Leu Ser Trp Leu Ser Leu Asp  
165 170 175

Val Ser Ala Ala Phe Gly Pro Gly Leu Gln Ser Leu Thr Asn  
180 185 190

Leu Leu Ser Ser Asn Leu Ser Trp Leu Gly Pro Gly Pro Gly Ala Gly  
195 200 205

Phe Phe Leu Leu Thr Arg Ile Leu Thr Ile Pro Gln Ser Gly Pro Gly  
210 215 220

Pro Gly Val Ser Phe Gly Val Trp Ile Arg Thr Pro Pro Ala Tyr Arg  
225 230 235 240

Pro Pro Asn Ala Pro Ile Gly Pro Gly Pro Gly Val Gly Pro Leu Thr  
245 250 255

Val Asn Glu Lys Arg Arg Leu Lys Leu Ile Gly Pro Gly Pro Gly Lys  
260 265 270

Gln Cys Phe Arg Lys Leu Pro Val Asn Arg Pro Ile Asp Trp Gly Pro  
275 280 285

Gly Pro Gly Ala Ala Asn Trp Ile Leu Arg Gly Thr Ser Phe Val Tyr  
290 295 300

Val Pro Gly Pro Gly Pro Gly Lys Gln Ala Phe Thr Phe Ser Pro Thr  
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Tyr Lys Ala Phe Leu Cys Gly Pro Gly Pro Gly Ala Lys Phe Val Ala  
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Ala Trp Thr Leu Lys Ala Ala Ala  
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